

NASA Technical Memorandum 85015

**COSPAS-SARSAT
Satellite Predictor
Volume XV**

(NASA-TM-85015-Vol-15) COSPAS-SARSAT
SATELLITE ORBIT PREDICTOR, VOLUME 15
Almanac, 16 Apr. - 15 Oct. 1990 (NASA)
15 p

N90-70765

Unclassified
00/15 0287379

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April 1990



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1990

GLOSSARY

AOS	Acquisition of Signal
COSPAS	Space System for Search of Vessels in Distress (USSR)
ELT	Emergency Locator Transmitter
EPIRB	Emergency Position Indicating Radio Beacon
GMT	Greenwich Mean Time
LOS	Loss of Signal
LUT	Local User Terminal
SARSAT	Search and Rescue Satellite Aided Tracking

SATELLITE ORBIT PREDICTOR

The satellite orbit predictor is a graphical aid for determining the relationship between the satellite (SARSAT or COSPAS) orbit, antenna coverage of the spacecraft and coverage of the LUT's. The predictor allows the user to quickly visualize if a selected position will probably be detected and is composed of a base map and a satellite track overlay for each satellite. Additionally, a table of equator crossings for each satellite is included.

In order for a LUT to receive ELT/EPIRB information from a satellite, mutual visibility between the satellite, LUT and ELT/EPIRB must occur. Mutual visibility requires two simultaneous conditions:

- a. The satellite subtrack or ground track must lie within a LUT coverage circle for at least 4 minutes.
- b. and the suspected ELT/EPIRB must lie within the satellite antenna coverage swath during the 4 minute period.

The base map is a polar stereographic projection of the northern hemisphere. The LUT coverage circles are based on the LUT seeing the satellite at the horizon. On projections of this type equal increments of latitude are not equidistant. Therefore, the map includes a dot matrix in the ocean areas with the dots printed as a one degree latitude by one degree longitude field. Another property of the projection is that the center of the LUT coverage does not coincide with the actual geographical position of the LUT.

The overlay shows the satellite ground track or subtrack (black) starting from the ascending node (northbound equator crossing) and continuing minute by minute across the overlay. In addition, the 10 degree coverage limits of the spacecraft antenna (red) are plotted on both sides of the subtrack. The yellow lines connecting the antenna coverage swath and the subtrack indicate time in minutes. Just to the west of the left hand antenna coverage limit is a short line segment (labeled "next pass") which is the index for the next ascending note equator crossing.

The table of satellite equator crossings contains the zulu date/time group that a satellite will cross the equator northbound, the orbit number, and the longitude that it will cross the equator. A particular orbit starts when the satellite crosses the equator northbound (ascending) and ends just prior to the next ascending node equator crossing. The longitudes are listed in degrees east longitude, i.e., a negative number in this column is a west longitude.

To use the predictor, first select an equator crossing from the table and then rotate the satellite overlay to position the satellite subtrack over the selected equator crossing longitude. The predictor now represents the satellite ground track for the selected orbit. Subsequent and previous orbit depictions can be obtained by using the "next pass" index.

For subsequent orbits... mark or note the longitude beneath the "next pass" index and rotate the overlay clockwise to position the satellite subtrack over the new equator crossing longitude. For previous orbits, rotate the overlay counterclockwise to position the "next pass" index over the present equator crossing. The ground track for the previous pass will be to the right of the original orbit, and the subtrack for subsequent orbits will be to the left of the original equator crossing. One can do this all the way around the wheel without sacrificing a great deal of accuracy.

So far we have just looked at positioning the overlay to obtain a depiction of a satellite ground track for a selected orbit number and then ground tracks for later and earlier orbits. Now let's examine what information we can get from the depiction. When the subtrack intersects a LUT coverage circle, the LUT will receive signals from the satellite for the time period that the subtrack is within a coverage circle. An ELT/EPIRB is visible to the satellite when it lies within the antenna coverage limits (red lines). Mutual visibility occurs when an ELT/EPIRB is within satellite's field-of-view at the same time that the satellite subtrack lies within a LUT coverage circle. From this, we can see for a selected orbit if a spacecraft will be seen by a LUT and approximately where ELTs/EPIRBs must be located to be processed by a LUT. The predictor can be used for more sophisticated problems such as approximate AOS and LOS at a LUT, next time an ELT/EPIRB will be in mutual visibility, and when/if an area of interest will be seen by a satellite and a LUT.

To determine approximate AOS and LOS at a LUT, refer to the equator crossing table and note the time (in zulu) that the satellite will cross the equator. Next, position the overlay as previously discussed and count the yellow lines from the equator to the point at which the subtrack intersects the LUT coverage circle. Add the number of minutes to the time of equator crossing and you have the approximate AOS. Continue counting the yellow lines until the subtrack exists the LUT circle and add them to the AOS time and you have the approximate LOS as well as the approximate duration of the pass. (See example 1.)

Finding out when the next time an ELT/EPIRB will be in mutual visibility of the satellite and LUT is simply a combination of the above two tasks. From the original orbit, move the overlay clockwise orbit-by-orbit using the "next pass" index until mutual visibility is established and then reference the equator crossing table for the time of equator crossing using the longitude now under the ascending node. By counting the minutes since equator crossing and adding them to the time of equator crossing, one comes up with the approximate time the ELT/EPIRB will next be in mutual visibility. (See example 2.)

Using the orbit predictor to determine when and if an area of interest will be reviewed by the satellite and the LUT is a bit more complicated. First, locate the area of interest on the base map, refer to the equator crossing table for a longitude within plus or minus 20 degrees that has an equator crossing time within the appropriate time frame, position the overlay at the selected longitude and determine if mutual visibility will exist. (See example 3.) If there is not mutual visibility on that orbit, rotate the overlay using the "next page" index until you determine that mutual visibility exists or that the interest area is too distant from a LUT or the satellite subtrack for mutual visibility to exist.

EXAMPLE NO. 1

1. Refer to the equator crossing table for time and longitude of the desired equator crossing:

TIME (GMT)	E. LONGITUDE	ORBIT
day hr mn sc	deg.dg	
292 9 32 4	19.94	1523
292 22 17 26	-6.52	1524
292 13 2 48	-32.99	1525
292 14 48 9	-59.45	1526<
292 16 33 31	-85.92	1527
292 18 18 52	-112.38	1528

From the equator crossing table, select orbit number 1526. The zulu date/time group for the equator crossing is 292 (19 Oct) 1448:09. The longitude of the equator crossing is 59.45 W.

2. Position the overlay so the subtrack coincides with the northbound equator crossing and then count the number of yellow lines (minutes) from the equator crossing to the point where the subtrack enters a LUT circle (AOS) and exits a LUT circle (LOS).

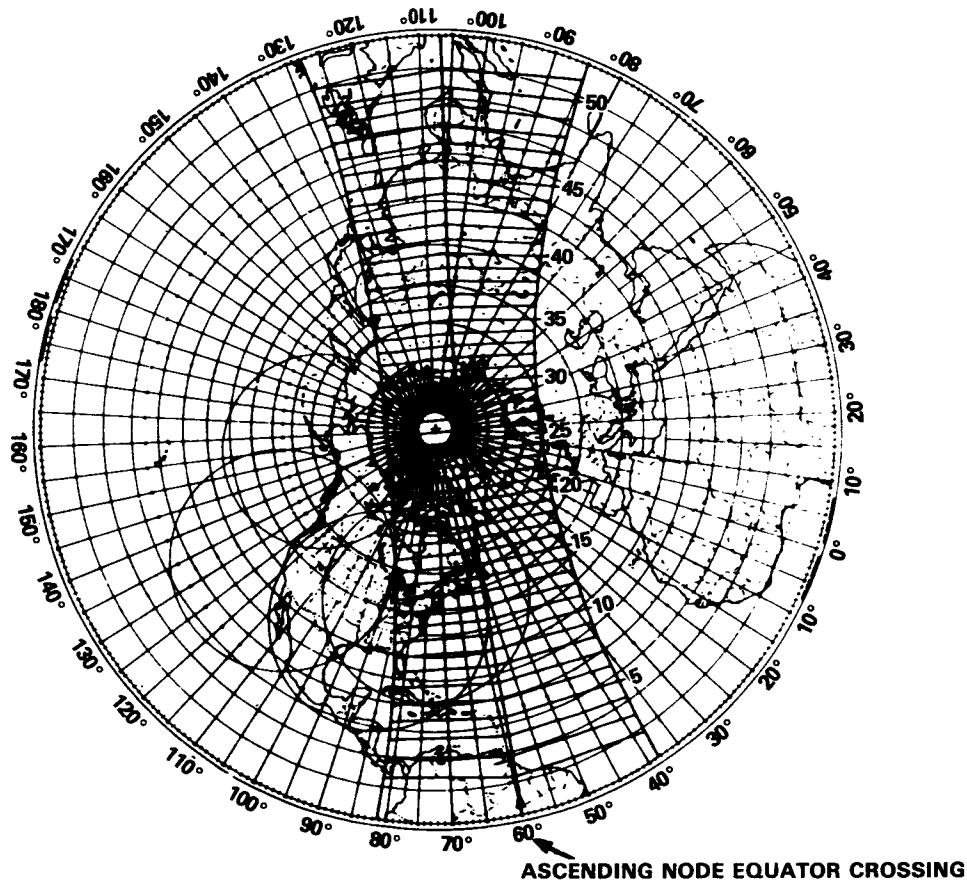


Figure 1

Position the overlay so the ascending node is set at 59.45 W. Now count the number of yellow lines from the equator until the subtrack intersects a LUT circle. In this case the subtrack intersects a LUT circle 5 minutes after crossing the equator, the subtrack lies within the LUT circle for 14 minutes before exiting. Adding these times to the equator crossing time of 1448:09 yields an approximate AOS of 1453:09 and an approximate LOS of 1504:09.

EXAMPLE NO. 2

1. From the original orbit move the overlay clockwise using the "next pass" index until mutual visibility is established.

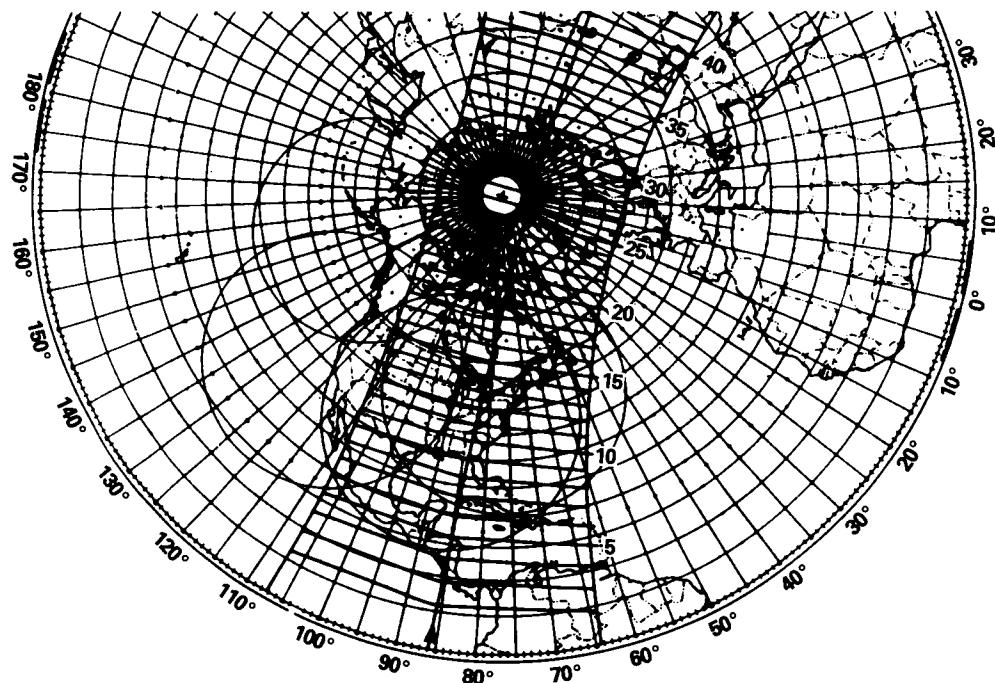


Figure 2

Assume there is an ELT located at 40 00.0 N. and 080 00.0 W. The original orbit (1526) is within mutual visibility, and we want to know the next time the ELT will be in mutual visibility. The "next pass" index is at approximately 087 W. Rotate the overlay until the subtrack coincides with 087 W.

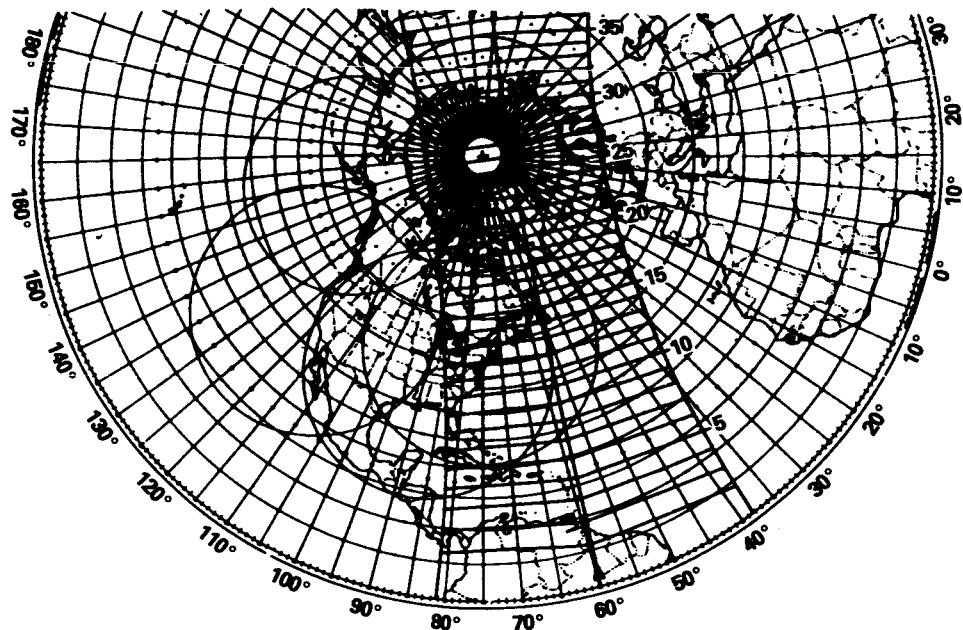


Figure 3

By looking at the subtrack and LUT circle, we see that the satellite will see the ELT and LUT on the next orbit (#1528). Adding the times to the equator crossing time (1633:31) gives us an approximate AOS of 1637, a 16 minute pass with an approximate LOS of 1653.

EXAMPLE NO. 3

SCENARIO: Assume you are interested in using the SARSAT system to locate the possible wreckage of a light aircraft that departed Charleston, South Carolina, enroute to Roanoke, Virginia. The aircraft departed Charleston at 1300Z on 19 October 1982 and never reached Roanoke.

1. Locate the route of flight or suspected ELT/EPIRB position on the base map and note the approximate longitude.

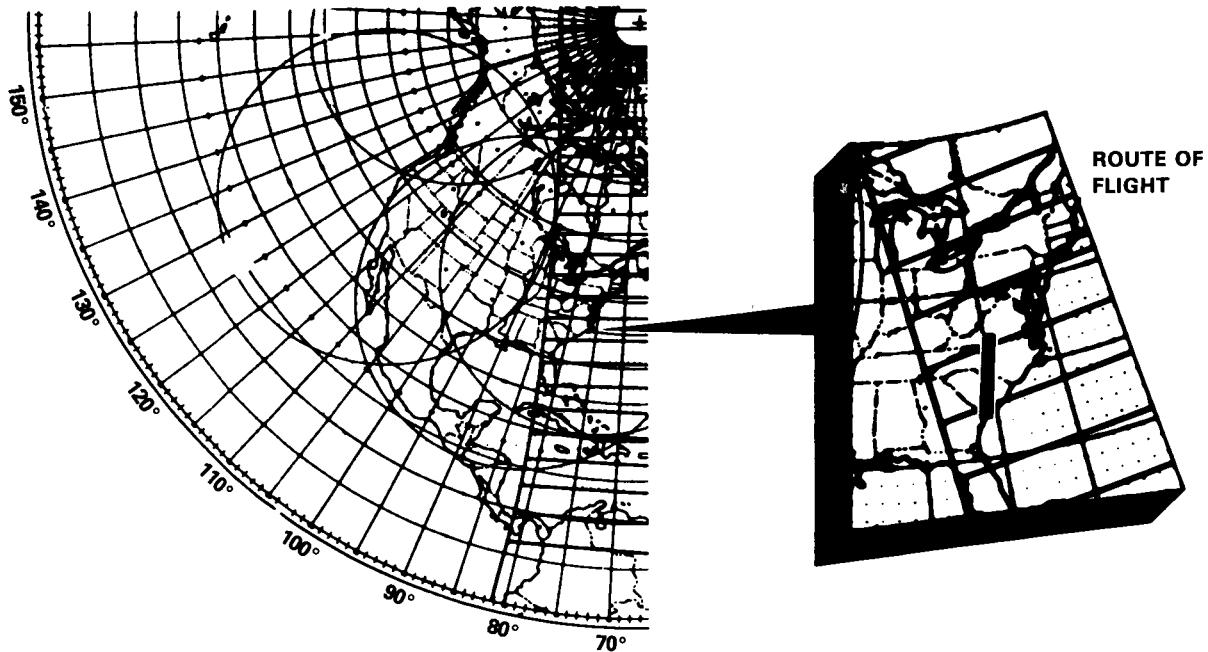


Figure 4

The Route of flight is marked in the expanded box: approximate longitude is 080 W.

- Refer to the equator crossing table and select an orbit within 20 degrees of the approximate longitude and within the appropriate time frame.

TIME (GMT)	E. LONGITUDE	ORBIT
day hr mn sc	deg.dg	
292 11 17 26	-6.52	1524
292 13 2 48	-32.99	1525
292 14 48 9	-59.45	1526
292 16 33 31	-85.92	1527
292 18 88 52	-112.38	1528

From the table there are two orbits that are within plus or minus 20 degrees of the route of flight; 1526 and 1527. Orbit #1526 is the earliest (1448Z) and is within our time frame.

- Position the overlay at the selected longitude and determine if mutual visibility exists or will exist.

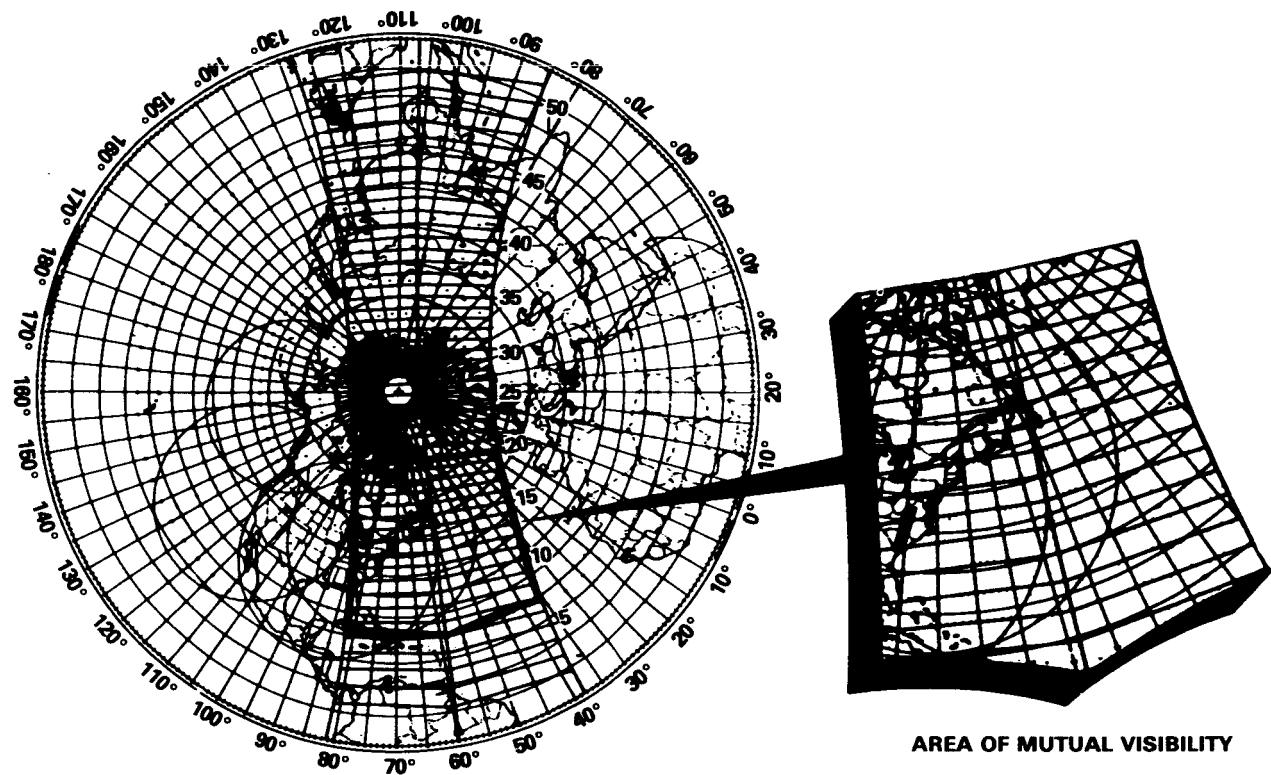


Figure 5

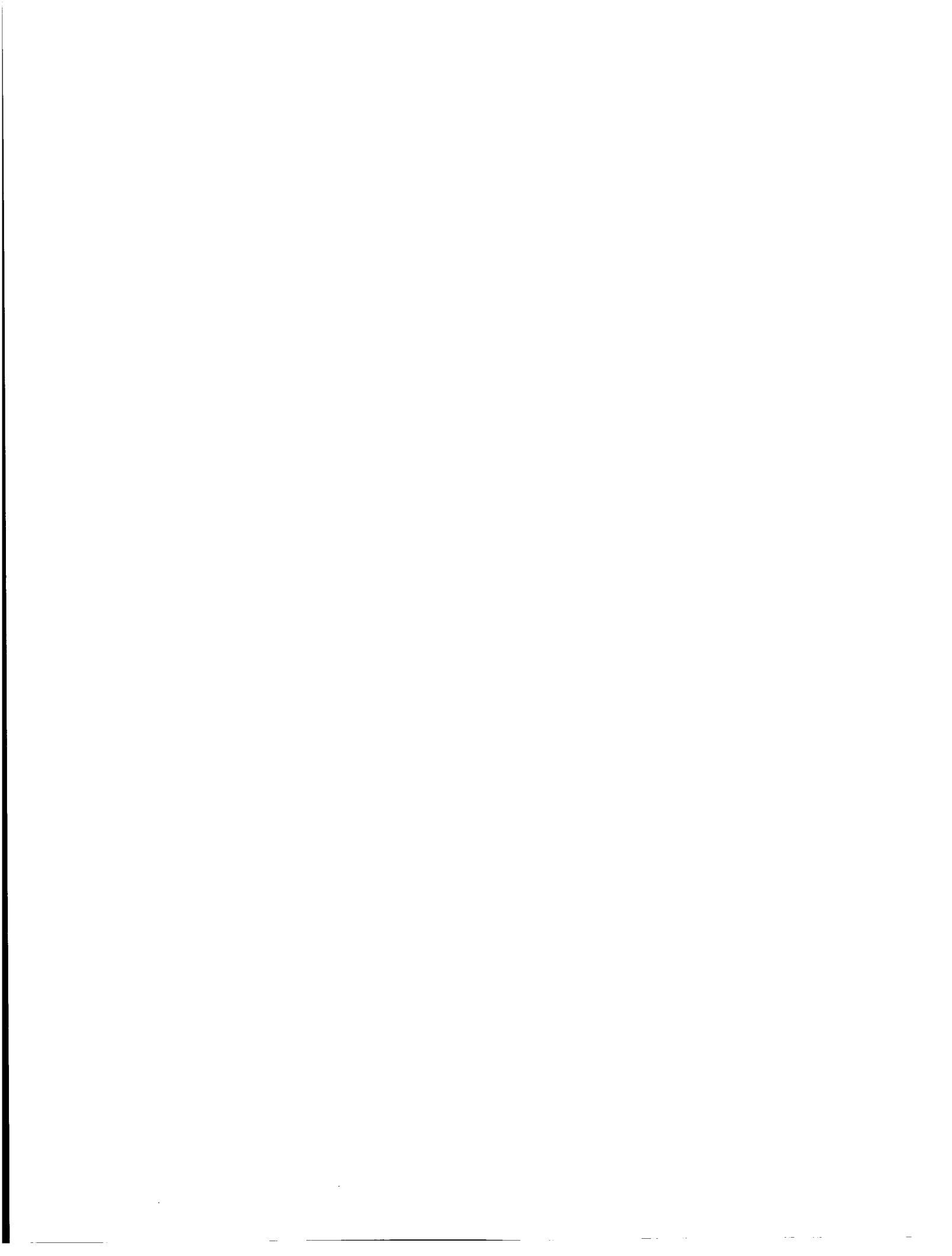
Remember, mutual visibility exists when the ELT/EPIRB is within the satellite antenna swath and the satellite subtrack is within a LUT circle. We can see that the ground track is within the LUT circle. Also, the route of flight we are interested in is within the antenna swath at the same time the ground track is within the LUT circle. Therefore, mutual visibility exists on orbit #1526.



CALENDAR 1990

DAYS OF WEEK AND DAYS OF THE YEAR

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC												
1	M	1	TH	32	TH	60	SU	91	TU	121	F	152	SU	182	W	213	SA	244	M	274	TH	305	SA	335
2	TU	2	F	33	FR	61	M	92	W	122	SA	153	M	183	TH	214	SU	245	TU	275	F	306	SU	336
3	WU	3	SA	34	SA	62	TU	93	TH	123	SU	154	TU	184	F	215	M	246	W	276	SA	307	M	337
4	TH	4	SU	35	SU	63	W	94	F	124	M	155	W	185	SA	216	TU	247	TH	277	SU	308	TU	338
5	F	5	M	36	M	64	TH	95	SA	125	TU	156	TH	186	SU	217	W	248	F	278	M	309	W	339
6	SA	6	TU	37	TU	65	F	96	SU	126	W	157	F	187	M	218	TH	249	SA	279	TU	310	TH	340
7	SU	7	W	38	W	66	SA	97	M	127	TH	158	SA	188	TU	219	F	250	SU	280	W	311	F	341
8	M	8	TH	39	TH	67	SU	98	TU	128	F	159	SU	189	W	220	SA	251	M	281	TH	312	SA	342
9	TU	9	F	40	F	68	M	99	W	129	SA	160	M	190	TH	221	SU	252	TU	282	F	313	SU	343
10	W	10	SA	41	SA	69	TU	100	TH	130	SU	161	TU	191	F	222	M	253	W	283	SA	314	M	344
11	TH	11	SU	42	SU	70	W	101	F	131	M	162	W	192	SA	223	TU	254	TH	284	SU	315	TU	345
12	F	12	M	43	M	71	TH	102	SA	132	TU	163	TH	193	SU	224	W	255	F	285	M	316	W	346
13	SA	13	TU	44	TU	72	F	103	SU	133	W	164	F	194	M	225	TH	256	SA	286	TU	317	TH	347
14	SU	14	W	45	W	73	SA	104	M	134	TH	165	SA	195	TU	226	F	257	SU	287	W	318	F	348
15	M	15	TH	46	TH	74	SU	105	TU	135	F	166	SU	196	W	227	SA	258	M	288	TH	319	SA	349
16	TU	16	F	47	F	75	M	106	W	136	SA	167	M	197	TH	228	SU	259	TU	289	F	320	SU	350
17	W	17	SA	48	SA	76	TU	107	TH	137	SU	168	TU	198	F	229	M	260	W	290	SA	321	M	351
18	TH	18	SU	49	SU	77	W	108	F	138	M	169	W	199	SA	230	TU	261	TH	291	SU	322	TU	352
19	F	19	M	50	M	78	TH	109	SA	139	TU	170	TH	200	SU	231	W	262	F	292	M	323	W	353
20	SA	20	TU	51	TU	79	F	110	SU	140	W	171	F	201	M	232	TH	263	SA	293	TU	324	TH	354
21	SU	21	W	52	W	80	SA	111	M	141	TH	172	SA	202	TU	233	F	264	SU	294	W	325	F	355
22	M	22	TH	53	TH	81	SU	112	TU	142	F	173	SU	203	W	234	SA	265	M	295	TH	326	SA	356
23	TU	23	F	54	F	82	M	113	W	143	SA	174	M	204	TH	235	SU	266	TU	296	F	327	SU	357
24	W	24	SA	55	SA	83	TU	114	TH	144	SU	175	TU	205	F	236	M	267	W	297	SA	328	M	358
25	TH	25	SU	56	SU	84	W	115	F	145	M	176	W	206	SA	237	TU	268	TH	298	SU	329	TU	359
26	F	26	M	57	M	85	TH	116	SA	146	TU	177	TH	207	SU	238	W	269	F	299	M	330	W	360
27	SA	27	TU	58	TU	86	F	117	SU	147	W	178	F	208	M	239	TH	270	SA	300	TU	331	TH	361
28	SU	28	W	59	W	87	SA	118	M	148	TH	179	SA	209	TU	240	F	271	SU	301	W	332	F	362
29	M	29			TH	88	SU	119	TU	149	F	180	SU	210	W	241	SA	272	M	302	TH	333	SA	363
30	TU	30			F	89	M	120	W	150	SA	181	M	211	TH	242	SU	273	TU	303	F	334	SU	364
31	W	31				SA	90		TH	151			TU	212	F	243			W	304			M	365



SATELLITE C2:
Satellite was decommissioned on 12/23/89

SATELLITE C3: ORBITAL ELEMENTS IN CLASSICAL SPACE

DETERMINATION: 8476	REVOLUTION: 28422	EPOCH: 1990 FEB 21	18:03:25
SM AXIS : 7.35786675D+03 km	ECCENTRICITY : 0.28577856D-02		
INCLINATION : 8.29563146D+01 deg	LONGITUDE : 1.47403372D+02 deg		
PERIGEE : 3.01919798D+02 deg	TRUE ANOMALY : 1.75309317D+02 deg		
R/T 121.5:ON	R/T 406:ON	GLOBAL 406:ON	

SATELLITE C4: ORBITAL ELEMENTS IN CLASSICAL SPACE

DETERMINATION: 1064	REVOLUTION: 3195	EPOCH: 1990 FEB 22	07:41:43
SM AXIS : 7.35574760D+03 km	ECCENTRICITY : 0.45195342D-02		
INCLINATION : 8.29596801D+01 deg	LONGITUDE : 9.66614195D+00 deg		
PERIGEE : 3.59214163D+02 deg	TRUE ANOMALY : 1.12767412D+02 deg		
R/T 121.5:ON	R/T 406:ON	GLOBAL 406:ON	

SATELLITE S2: ORBITAL ELEMENTS IN CLASSICAL SPACE

DETERMINATION: 9074	REVOLUTION: 26778	EPOCH: 1990 FEB 22	11:09:43
SM AXIS : 7.22002903D+03 km	ECCENTRICITY : 0.22195535D-02		
INCLINATION : 9.91673170D+01 deg	LONGITUDE : 5.06632348D+01 deg		
PERIGEE : 3.40213368D+02 deg	TRUE ANOMALY : 1.31800662D+02 deg		
R/T 121.5:ON	R/T 406:ON	GLOBAL 406:OFF	

SATELLITE S3: ORBITAL ELEMENTS IN CLASSICAL SPACE

DETERMINATION: 5962	REVOLUTION: 17829	EPOCH: 1990 FEB 22	12:29:19
SM AXIS : 7.18319351D+03 km	ECCENTRICITY : 0.11249644D-02		
INCLINATION : 9.86128082D+01 deg	LONGITUDE : 8.39847432D+01 deg		
PERIGEE : 2.81455190D+02 deg	TRUE ANOMALY : 1.93525320D+02 deg		
R/T 121.5:ON	R/T 406:OFF	GLOBAL 406:OFF	

SATELLITE S4: ORBITAL ELEMENTS IN CLASSICAL SPACE

DETERMINATION: 2675	REVOLUTION: 7276	EPOCH: 1990 FEB 22	08:35:11
SM AXIS : 7.22372160D+03 km	ECCENTRICITY : 0.12081483D-02		
INCLINATION : 9.89735728D+01 deg	LONGITUDE : 1.63656830D+00 deg		
PERIGEE : 2.84034651D+02 deg	TRUE ANOMALY : 1.87470743D+02 deg		
R/T 121.5:ON	R/T 406:ON	GLOBAL 406:ON	

SATELLITE C3**Ascending Node Predictions**

Predicting for 186 days

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

104 00:28:43	-99.47	29126
104 02:13:38	-125.83	29127
104 03:58:33	-152.18	29128
104 05:43:28	-178.54	29129
104 07:28:23	155.11	29130
104 09:13:17	128.75	29131
104 10:58:12	102.40	29132
104 12:43:07	76.05	29133
104 14:28:02	49.69	29134
104 16:12:57	23.34	29135
104 17:57:52	-3.01	29136
104 19:42:46	-29.37	29137
104 21:27:41	-55.72	29138
104 23:12:36	-82.08	29139

SATELLITE C4**Ascending Node Predictions**

Predicting for 184 days

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

104 01:41:39	104.89	3892
104 03:26:33	78.54	3893
104 05:11:27	52.19	3894
104 06:56:20	25.94	3895
104 08:41:14	-.31	3896
104 10:26:08	-26.86	3897
104 12:11:02	-53.21	3898
104 13:56:56	-79.56	3899
104 15:40:49	-105.91	3900
104 17:25:43	-132.26	3901
104 19:10:37	-158.61	3902
104 20:55:31	175.04	3903
104 22:40:24	148.69	3904

105 00:57:31	-108.43	29140
105 02:42:26	-134.78	29141
105 04:27:21	-161.14	29142
105 06:12:16	172.51	29143
105 07:57:10	146.15	29144
105 09:42:05	119.80	29145
105 11:27:00	93.45	29146
105 13:11:55	67.09	29147
105 14:56:50	40.74	29148
105 16:41:45	14.38	29149
105 18:26:39	-11.97	29150
105 20:11:34	-38.33	29151
105 21:56:29	-64.68	29152
105 23:41:24	-91.03	29153

105 00:25:18	122.34	3905
105 02:10:12	96.00	3906
105 03:55:06	69.65	3907
105 05:40:00	43.30	3908
105 07:24:53	16.95	3909
105 09:09:47	-9.40	3910
105 10:54:41	-35.75	3911
105 12:39:35	-62.10	3912
105 14:24:28	-88.45	3913
105 16:09:22	-114.80	3914
105 17:54:16	-141.15	3915
105 19:39:10	-167.50	3916
105 21:24:03	166.15	3917
105 23:08:57	139.80	3918

106 01:26:19	-117.39	29154
106 03:11:14	-143.74	29155
106 04:56:08	-170.10	29156
106 06:41:03	163.55	29157
106 08:25:58	137.20	29158
106 10:10:53	110.84	29159
106 11:55:48	84.49	29160
106 13:40:43	58.14	29161
106 15:25:38	31.78	29162
106 17:10:32	5.43	29163
106 18:55:27	-20.93	29164
106 20:40:22	-47.28	29165
106 22:25:17	-73.63	29166

106 00:53:51	113.45	3919
106 02:38:45	87.10	3920
106 04:23:39	60.75	3921
106 06:08:32	34.40	3922
106 07:53:26	8.05	3923
106 09:38:20	-18.30	3924
106 11:23:14	-44.65	3925
106 13:08:07	-71.00	3926
106 14:53:01	-97.35	3927
106 16:37:55	-123.69	3928
106 18:22:49	-150.04	3929
106 20:07:43	-176.39	3930
106 21:52:36	157.26	3931
106 23:37:30	130.91	3932

107 00:10:12	-99.99	29167
107 01:55:07	-126.34	29168
107 03:40:01	-152.70	29169
107 05:24:56	-179.05	29170
107 07:09:51	154.59	29171
107 08:54:46	128.24	29172
107 10:39:41	101.89	29173
107 12:24:36	75.53	29174
107 14:09:31	49.18	29175
107 15:54:25	22.82	29176
107 17:39:20	-3.53	29177
107 19:24:15	-29.88	29178
107 21:09:10	-56.24	29179
107 22:54:05	-82.59	29180

107 01:22:24	104.56	3933
107 03:07:18	78.21	3934
107 04:52:11	51.86	3935
107 06:37:05	25.51	3936
107 08:21:59	-.84	3937
107 10:06:53	-27.19	3938
107 11:51:47	-53.54	3939
107 13:36:40	-79.89	3940
107 15:21:34	-106.24	3941
107 17:06:28	-132.59	3942
107 18:51:22	-158.94	3943
107 20:36:15	174.71	3944
107 22:21:09	148.36	3945

SATELLITE S2

Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

104	00:32:00	-107.60	27493
104	02:14:00	-133.10	27494
104	03:56:01	-158.60	27495
104	05:38:01	175.90	27496
104	07:20:02	150.40	27497
104	09:02:02	124.91	27498
104	10:44:03	99.40	27499
104	12:26:03	73.91	27500
104	14:08:04	48.40	27501
104	15:50:04	22.91	27502
104	17:32:05	-2.60	27503
104	19:14:05	-28.09	27504
104	20:56:06	-53.60	27505
104	22:38:06	-79.09	27506

SATELLITE S3

Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

104	00:34:10	-82.09	18547
104	02:35:23	-107.39	18548
104	04:16:36	-132.69	18549
104	05:57:49	-158.00	18550
104	07:39:03	176.69	18551
104	09:20:16	151.39	18552
104	11:01:29	126.08	18553
104	12:42:42	100.78	18554
104	14:23:55	75.48	18555
104	16:05:09	50.16	18556
104	17:46:22	24.86	18557
104	19:27:35	-45	18558
104	21:08:48	-25.75	18559
104	22:50:01	-51.05	18560

SATELLITE S4

Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

104	00:30:39	-157.35	7991
104	02:12:44	177.13	7992
104	03:54:48	151.62	7993
104	05:36:53	126.10	7994
104	07:18:58	106.58	7995
104	09:01:03	75.06	7996
104	10:43:07	49.55	7997
104	12:25:12	24.03	7998
104	14:07:17	-1.50	7999
104	15:49:22	-27.02	8000
104	17:31:27	-52.54	8001
104	19:13:31	-78.05	8002
104	20:55:36	-103.57	8003
104	22:37:41	-129.09	8004

105	00:20:07	-104.60	27507
105	02:02:07	-130.09	27508
105	03:44:08	-155.60	27509
105	05:26:08	178.91	27510
105	07:08:09	153.41	27511
105	08:50:09	127.91	27512
105	10:32:10	102.41	27513
105	12:14:10	76.91	27514
105	13:56:11	51.41	27515
105	15:38:11	25.92	27516
105	17:20:12	.41	27517
105	19:02:12	-25.08	27518
105	20:44:13	-50.59	27519
105	22:26:13	-76.08	27520

105	00:31:15	-76.37	18561
105	02:12:28	-101.67	18562
105	03:53:41	-126.97	18563
105	05:34:54	-152.28	18564
105	07:16:07	-177.58	18565
105	08:57:21	157.10	18566
105	10:38:34	131.89	18567
105	12:19:47	106.50	18568
105	14:01:00	81.20	18569
105	15:42:13	55.89	18570
105	17:23:26	30.59	18571
105	19:04:40	5.27	18572
105	20:45:53	-20.03	18573
105	22:27:06	-45.33	18574

105	00:19:46	-154.61	8005
105	02:01:51	179.87	8006
105	03:43:55	154.36	8007
105	05:26:00	128.83	8008
105	07:08:05	103.31	8009
105	08:50:10	77.79	8010
105	10:32:14	52.28	8011
105	12:14:19	26.76	8012
105	13:56:24	1.24	8013
105	15:38:29	-24.28	8014
105	17:20:34	-49.80	8015
105	19:02:38	-75.31	8016
105	20:44:43	-100.84	8017
105	22:26:48	-126.36	8018

106	00:08:14	-101.59	27521
106	01:50:14	-127.08	27522
106	03:32:15	-152.59	27523
106	05:14:15	-178.08	27524
106	06:56:16	156.41	27525
106	08:38:16	130.92	27526
106	10:20:17	105.41	27527
106	12:02:17	79.92	27528
106	13:44:18	54.42	27529
106	15:26:18	28.92	27530
106	17:08:19	3.42	27531
106	18:50:19	-22.08	27532
106	20:32:20	-47.58	27533
106	22:14:20	-73.07	27534
106	23:56:21	-98.58	27535

106	00:08:19	-70.64	18575
106	01:49:32	-95.94	18576
106	03:30:46	-121.25	18577
106	05:11:59	-146.56	18578
106	06:53:12	-171.86	18579
106	08:34:25	162.84	18580
106	10:15:38	137.53	18581
106	11:56:52	112.22	18582
106	13:38:05	86.91	18583
106	15:19:18	61.61	18584
106	17:00:31	36.31	18585
106	18:41:44	11.01	18586
106	20:22:58	-14.31	18587
106	22:04:11	-39.61	18588
106	23:45:24	-64.92	18589

106	00:08:53	-151.88	8019
106	01:50:58	-177.40	8020
106	03:33:02	157.09	8021
106	05:15:07	131.57	8022
106	06:57:12	106.05	8023
106	08:39:17	80.53	8024
106	10:21:21	55.02	8025
106	12:03:26	29.49	8026
106	13:45:31	3.97	8027
106	15:27:36	-21.55	8028
106	17:09:41	-47.07	8029
106	18:51:45	-72.58	8030
106	20:33:50	-98.10	8031
106	22:15:55	-123.62	8032
106	23:58:00	-149.14	8033

107	01:38:21	-124.07	27536
107	03:20:22	-149.58	27537
107	05:02:22	-175.07	27538
107	06:44:23	159.42	27539
107	08:26:23	133.93	27540
107	10:08:24	108.42	27541
107	11:50:24	82.93	27542
107	13:32:25	57.42	27543
107	15:14:25	31.93	27544
107	16:56:26	6.43	27545
107	18:38:26	-19.07	27546
107	20:20:27	-44.57	27547
107	22:02:27	-70.07	27548
107	23:44:28	-95.57	27549

107	01:26:37	-90.22	18590
107	03:07:50	-115.52	18591
107	04:49:04	-140.84	18592
107	06:30:17	-166.14	18593
107	08:11:30	168.56	18594
107	09:52:43	143.25	18595
107	11:33:56	117.95	18596
107	13:15:09	92.65	18597
107	14:56:23	67.33	18598
107	16:37:36	42.03	18599
107	18:18:49	16.73	18600
107	20:00:02	-8.58	18601
107	21:41:15	-33.88	18602
107	23:22:29	-59.20	18603

107	01:40:05	-174.67	8034
107	03:22:09	159.82	8035
107	05:04:14	134.30	8036
107	06:46:19	108.78	8037
107	08:28:24	83.26	8038
107	10:10:28	57.75	8039
107	11:52:33	32.23	8040
107	13:34:38	6.71	8041
107	15:16:43	-18.81	8042
107	16:58:48	-44.34	8043
107	18:40:52	-69.85	8044
107	20:22:57	-95.37	8045
107	22:05:02	-120.89	8046
107	23:47:07	-146.41	8047

SATELLITE C3**Ascending Node Predictions**

Predicting for 186 days

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

108 00:39:00	-108.94	29181
108 02:23:54	-135.30	29182
108 04:08:49	-161.65	29183
108 05:33:44	171.99	29184
108 07:38:39	145.64	29185
108 09:23:34	119.29	29186
108 11:08:29	92.93	29187
108 12:53:24	66.58	29188
108 14:38:18	40.22	29189
108 16:23:13	13.87	29190
108 18:08:08	-12.49	29191
108 19:53:03	-38.84	29192
108 21:37:58	-65.19	29193
108 23:22:53	-91.55	29194

SATELLITE C4**Ascending Node Predictions**

Predicting for 184 days

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

108 00:06:03	122.01	3946
108 01:50:57	95.66	3947
108 03:35:51	69.32	3948
108 05:20:44	42.96	3949
108 07:05:38	16.61	3950
108 08:50:32	-9.73	3951
108 10:35:26	-36.08	3952
108 12:20:19	-62.43	3953
108 14:05:13	-88.78	3954
108 15:50:07	-115.13	3955
108 17:35:01	-141.48	3956
108 19:19:55	-167.83	3957
108 21:04:48	165.82	3958
108 22:49:42	139.47	3959

109 01:07:47	-117.90	29195
109 02:52:42	-144.26	29196
109 04:37:37	-170.61	29197
109 06:22:32	163.04	29198
109 08:07:27	136.68	29199
109 09:52:22	110.33	29200
109 11:37:16	83.97	29201
109 13:22:11	57.62	29202
109 15:07:06	31.27	29203
109 16:52:01	4.91	29204
109 18:36:56	-21.44	29205
109 20:21:51	-47.79	29206
109 22:06:46	-74.15	29207
109 23:51:40	-100.50	29208

109 00:34:36	113.12	3960
109 02:19:30	86.77	3961
109 04:04:23	60.42	3962
109 05:49:17	34.07	3963
109 07:34:11	7.72	3964
109 09:19:05	-18.63	3965
109 11:03:59	-44.98	3966
109 12:48:52	-71.33	3967
109 14:33:46	-97.68	3968
109 16:18:40	-124.03	3969
109 18:03:34	-150.38	3970
109 19:48:28	-176.72	3971
109 21:33:21	156.92	3972
109 23:18:15	130.58	3973

110 01:36:35	-126.86	29209
110 03:21:30	-153.21	29210
110 05:06:25	-179.56	29211
110 06:51:20	154.08	29212
110 08:36:15	127.73	29213
110 10:21:09	101.37	29214
110 12:06:04	75.02	29215
110 13:50:59	48.66	29216
110 15:35:54	22.31	29217
110 17:20:49	-4.04	29218
110 19:05:44	-30.40	29219
110 20:50:38	-56.75	29220
110 22:35:33	-83.11	29221

110 01:03:09	104.23	3974
110 02:48:03	77.88	3975
110 04:32:56	51.53	3976
110 06:17:50	25.18	3977
110 08:02:44	-1.17	3978
110 09:47:38	-27.52	3979
110 11:32:32	-53.87	3980
110 13:17:25	-80.22	3981
110 15:02:19	-106.57	3982
110 16:47:13	-132.92	3983
110 18:32:07	-159.27	3984
110 20:17:00	174.38	3985
110 22:01:54	148.03	3986
110 23:46:48	121.68	3987

111 00:20:28	-109.46	29222
111 02:05:23	-135.81	29223
111 03:50:18	-162.17	29224
111 05:35:13	171.48	29225
111 07:20:08	145.13	29226
111 09:05:02	118.77	29227
111 10:49:57	92.42	29228
111 12:34:52	66.06	29229
111 14:19:47	39.71	29230
111 16:04:42	13.36	29231
111 17:49:37	-13.00	29232
111 19:34:31	-39.35	29233
111 21:19:26	-65.71	29234
111 23:04:21	-92.06	29235

111 01:31:42	95.33	3988
111 03:16:36	68.98	3989
111 05:01:29	42.63	3990
111 06:46:23	16.28	3991
111 08:31:17	-10.07	3992
111 10:16:11	-36.41	3993
111 12:01:04	-62.77	3994
111 13:45:58	-89.12	3995
111 15:30:52	-115.46	3996
111 17:15:46	-141.81	3997
111 19:00:40	-168.16	3998
111 20:45:33	165.49	3999
111 22:30:27	139.14	4000

SATELLITE S2

Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

108 01:26:28	-121.07	27550
108 03:08:29	-146.57	27551
108 04:50:29	-172.06	27552
108 06:32:30	162.43	27553
108 08:14:30	136.94	27554
108 09:56:31	111.43	27555
108 11:38:32	85.92	27556
108 13:20:32	60.43	27557
108 15:02:33	34.93	27558
108 16:44:33	9.43	27559
108 18:26:34	-16.07	27560
108 20:08:34	-41.57	27561
108 21:50:35	-67.07	27562
108 23:32:35	-92.56	27563

SATELLITE S3

Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

108 01:03:42	-84.50	18604
108 02:44:55	-109.80	18605
108 04:26:08	-135.11	18606
108 06:07:21	-160.41	18607
108 07:48:35	174.28	18608
108 09:29:48	148.97	18609
108 11:11:01	123.67	18610
108 12:52:14	98.37	18611
108 14:33:27	73.06	18612
108 16:14:41	47.75	18613
108 17:55:54	22.44	18614
108 19:37:07	-2.86	18615
108 21:18:20	-28.16	18616
108 22:59:33	-53.46	18617

SATELLITE S4

Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

108 01:29:11	-171.92	8048
108 03:11:16	162.56	8049
108 04:53:21	137.04	8050
108 06:35:26	111.51	8051
108 08:17:31	85.99	8052
108 09:59:35	60.48	8053
108 11:41:40	34.96	8054
108 13:23:45	9.44	8055
108 15:05:50	-16.08	8056
108 16:47:55	-41.60	8057
108 18:29:59	-67.11	8058
108 20:12:04	-92.63	8059
108 21:54:09	-118.16	8060
108 23:36:14	-143.68	8061

109 01:14:36	-118.07	27564
109 02:56:36	-143.56	27565
109 04:38:37	-169.07	27566
109 06:20:37	165.44	27567
109 08:02:38	139.93	27568
109 09:44:38	114.44	27569
109 11:26:39	88.93	27570
109 13:08:39	63.44	27571
109 14:50:40	37.93	27572
109 16:32:40	12.44	27573
109 18:14:41	-13.07	27574
109 19:56:41	-38.56	27575
109 21:38:42	-64.06	27576
109 23:20:42	-89.56	27577

109 00:40:46	-78.77	18618
109 02:22:00	-104.08	18619
109 04:03:13	-129.39	18620
109 05:44:26	-154.69	18621
109 07:25:39	-179.99	18622
109 09:06:52	154.70	18623
109 10:48:06	129.39	18624
109 12:29:19	104.09	18625
109 14:10:32	78.78	18626
109 15:51:45	53.48	18627
109 17:32:58	28.18	18628
109 19:14:12	2.86	18629
109 20:55:25	-22.44	18630
109 22:36:38	-47.75	18631

109 01:18:18	-169.19	8062
109 03:00:23	165.29	8063
109 04:42:28	139.77	8064
109 06:24:33	114.25	8065
109 08:06:38	88.73	8066
109 09:48:42	63.22	8067
109 11:30:47	37.70	8068
109 13:12:52	12.17	8069
109 14:54:57	-13.35	8070
109 16:37:02	-38.87	8071
109 18:19:06	-64.38	8072
109 20:01:11	-89.90	8073
109 21:43:16	-115.42	8074
109 23:25:21	-140.94	8075

110 01:02:43	-115.06	27578
110 02:44:43	-140.56	27579
110 04:26:44	-166.06	27580
110 06:08:44	168.45	27581
110 07:50:45	142.94	27582
110 09:32:45	117.45	27583
110 11:14:46	91.94	27584
110 12:56:46	66.45	27585
110 14:38:47	40.94	27586
110 16:20:47	15.45	27587
110 18:02:48	-10.06	27588
110 19:44:48	-35.55	27589
110 21:26:49	-61.06	27590
110 23:08:49	-86.55	27591

110 00:17:31	-73.05	18632
110 01:59:04	-98.35	18633
110 03:40:18	-123.67	18634
110 05:21:31	-148.97	18635
110 07:02:44	-174.27	18636
110 08:43:57	160.42	18637
110 10:25:10	135.12	18638
110 12:06:23	109.82	18639
110 13:47:37	84.50	18640
110 15:28:50	59.20	18641
110 17:10:03	33.90	18642
110 18:51:16	8.59	18643
110 20:32:29	-16.71	18644
110 22:13:43	-42.03	18645
110 23:54:56	-67.33	18646

110 01:07:25	-166.45	8076
110 02:49:30	168.03	8077
110 04:31:35	142.50	8078
110 06:13:40	116.98	8079
110 07:55:45	91.46	8080
110 09:37:49	65.95	8081
110 11:19:54	40.43	8082
110 13:01:59	14.91	8083
110 14:44:04	-10.61	8084
110 16:26:08	-36.12	8085
110 18:08:13	-61.64	8086
110 19:50:18	-87.17	8087
110 21:32:23	-112.69	8088
110 23:14:28	-138.21	8089

111 00:30:50	-112.06	27592
111 02:32:50	-137.55	27593
111 04:14:51	-163.05	27594
111 05:56:51	171.45	27595
111 07:38:52	145.95	27596
111 09:20:52	120.45	27597
111 11:02:53	94.93	27598
111 12:44:53	69.46	27599
111 14:26:54	43.95	27600
111 16:08:54	18.46	27601
111 17:50:55	-7.05	27602
111 19:32:55	-32.54	27603
111 21:14:56	-58.05	27604
111 22:56:56	-83.54	27605

111 01:36:09	-92.63	18647
111 03:17:22	-117.94	18648
111 04:58:35	-143.24	18649
111 06:39:49	-168.55	18650
111 08:21:02	166.14	18651
111 10:02:15	140.84	18652
111 11:43:28	115.54	18653
111 13:24:41	90.23	18654
111 15:05:54	64.93	18655
111 16:47:08	39.61	18656
111 18:28:21	14.31	18657
111 20:09:34	-10.99	18658
111 21:50:47	-36.29	18659
111 23:32:00	-61.60	18660

111 00:56:32	-163.72	8090
111 02:38:37	170.76	8091
111 04:20:42	145.24	8092
111 06:02:47	119.72	8093
111 07:44:52	94.19	8094
111 09:26:56	68.69	8095
111 11:09:01	43.16	8096
111 12:51:06	17.64	8097
111 14:33:11	-7.88	8098
111 16:15:15	-33.39	8099
111 17:57:20	-58.91	8100
111 19:39:25	-84.43	8101
111 21:21:30	-109.95	8102
111 23:03:35	-135.48	8103

SATELLITE C3
Ascending Node Predictions
Predicting for 186 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

112 00:49:16	-118.41	29236
112 02:34:11	-144.77	29237
112 04:19:06	-171.12	29238
112 06:04:00	162.52	29239
112 07:48:53	136.17	29240
112 09:33:50	109.81	29241
112 11:18:45	83.46	29242
112 13:03:40	57.11	29243
112 14:48:35	30.75	29244
112 16:33:29	4.40	29245
112 18:18:24	-21.96	29246
112 20:03:19	-48.31	29247
112 21:48:14	-74.66	29248
112 23:33:09	-101.02	29249

SATELLITE C4
Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

112 00:13:21	112.79	4001
112 02:00:15	86.44	4002
112 03:45:08	60.09	4003
112 05:30:02	33.74	4004
112 07:14:56	7.39	4005
112 08:59:50	-18.96	4006
112 10:44:44	-45.31	4007
112 12:29:37	-71.66	4008
112 14:14:31	-98.01	4009
112 15:59:25	-124.36	4010
112 17:44:19	-150.71	4011
112 19:29:12	-177.06	4012
112 21:14:06	156.59	4013
112 22:59:00	130.24	4014

113 01:18:04	-127.37	29250
113 03:02:59	-153.72	29251
113 04:47:53	179.92	29252
113 06:32:48	153.57	29253
113 08:17:43	127.21	29254
113 10:02:38	100.86	29255
113 11:47:33	74.51	29256
113 13:32:28	48.15	29257
113 15:17:22	21.80	29258
113 17:02:17	-4.56	29259
113 18:47:12	-30.91	29260
113 20:32:07	-57.26	29261
113 22:17:02	-83.62	29262

113 00:43:54	103.89	4015
113 02:28:48	77.55	4016
113 04:13:41	51.19	4017
113 05:58:35	24.85	4018
113 07:43:29	-1.50	4019
113 09:28:23	-27.85	4020
113 11:13:17	-54.20	4021
113 12:58:10	-80.55	4022
113 14:43:04	-106.90	4023
113 16:27:58	-133.25	4024
113 18:12:52	-159.60	4025
113 19:57:45	174.05	4026
113 21:42:39	147.70	4027
113 23:27:33	121.35	4028

114 00:01:57	-109.97	29263
114 01:46:51	-136.33	29264
114 03:31:46	-162.68	29265
114 05:16:41	170.96	29266
114 07:01:36	144.61	29267
114 08:46:31	118.26	29268
114 10:31:26	91.90	29269
114 12:16:20	65.55	29270
114 14:01:15	39.19	29271
114 15:46:10	12.84	29272
114 17:31:05	-13.51	29273
114 19:16:00	-39.87	29274
114 21:00:55	-66.22	29275
114 22:45:49	-92.58	29276

114 01:12:27	95.00	4029
114 02:57:21	68.65	4030
114 04:42:14	42.30	4031
114 06:27:08	15.95	4032
114 08:12:02	-10.40	4033
114 09:56:56	-36.75	4034
114 11:41:49	-63.10	4035
114 13:26:43	-89.45	4036
114 15:11:37	-115.80	4037
114 16:56:31	-142.14	4038
114 18:41:25	-168.49	4039
114 20:26:18	165.15	4040
114 22:11:12	138.81	4041
114 23:56:06	112.46	4042

115 00:30:44	-118.93	29277
115 02:15:39	-145.28	29278
115 04:00:34	-171.64	29279
115 05:45:29	162.01	29280
115 07:30:24	135.66	29281
115 09:15:19	109.30	29282
115 11:00:13	82.95	29283
115 12:45:08	56.59	29284
115 14:30:03	30.24	29285
115 16:14:58	3.89	29286
115 17:59:53	-22.47	29287
115 19:44:48	-48.82	29288
115 21:29:42	-75.18	29289
115 23:14:37	-101.53	29290

115 01:41:00	86.11	4043
115 03:25:53	59.76	4044
115 05:10:47	33.41	4045
115 06:55:41	7.06	4046
115 08:40:35	-19.29	4047
115 10:25:29	-45.64	4048
115 12:10:22	-71.99	4049
115 13:55:16	-98.34	4050
115 15:40:10	-124.69	4051
115 17:25:04	-151.04	4052
115 19:09:57	-177.39	4053
115 20:54:51	156.26	4054
115 22:39:45	129.91	4055

SATELLITE S2							SATELLITE S3							SATELLITE S4							
Ascending Node Predictions							Ascending Node Predictions							Ascending Node Predictions							
Predicting for 184 days							Predicting for 184 days							Predicting for 184 days							
TIME (GMT)	E LONG	ORBIT	TIME (GMT)	E LONG	ORBIT	TIME (GMT)	E LONG	ORBIT	day	hr	mn	sc	deg	dg	day	hr	mn	sc	deg	dg	
112 00:38:57	-109.05	27606	112 01:13:14	-86.91	18661	112 00:45:39	-160.98	8104							112 02:27:44	173.49	8105				
112 02:20:57	-134.54	27607	112 02:54:27	-112.22	18662	112 04:09:49	147.97	8106							112 04:51:54	122.45	8107				
112 04:02:58	-160.05	27608	112 04:35:40	-137.32	18663	112 07:33:58	96.94	8108							112 09:16:03	71.42	8109				
112 05:44:58	174.46	27609	112 06:16:53	-162.82	18664	112 10:58:08	45.90	8110							112 12:40:13	20.38	8111				
112 07:26:59	148.93	27610	112 07:58:06	171.87	18665	112 14:22:18	-5.15	8112							112 16:04:22	-30.65	8113				
112 09:08:59	123.46	27611	112 09:39:20	146.56	18666	112 17:46:27	-56.18	8114							112 19:28:32	-81.70	8115				
112 10:51:00	97.96	27612	112 11:20:33	121.26	18667	112 21:10:37	-107.22	8116							112 22:52:41	-132.73	8117				
112 12:33:00	72.46	27613	112 13:01:46	95.95	18668																
112 14:15:01	46.96	27614	112 14:42:59	70.65	18669																
112 15:57:01	21.46	27615	112 16:24:12	45.35	18670																
112 17:39:02	-4.04	27616	112 18:05:26	20.03	18671																
112 19:21:02	-29.53	27617	112 19:46:39	-5.27	18672																
112 21:03:03	-55.04	27618	112 21:27:52	-30.58	18673																
112 22:45:03	-80.53	27619	112 23:09:05	-55.88	18674																
113 00:27:04	-106.04	27620	113 00:50:18	-81.18	18675	113 00:34:46	-158.25	8118							113 02:16:51	176.23	8119				
113 02:09:04	-131.53	27621	113 02:31:31	-106.48	18676	113 03:58:56	150.71	8120							113 05:41:01	125.18	8121				
113 03:51:05	-157.04	27622	113 04:12:45	-131.80	18677	113 07:23:05	99.68	8122							113 09:05:10	74.15	8123				
113 05:33:05	177.47	27623	113 05:53:58	-157.10	18678	113 10:47:15	48.63	8124							113 12:29:20	23.11	8125				
113 07:15:06	151.96	27624	113 07:35:11	177.59	18679	113 14:11:25	-2.41	8126							113 15:53:29	-27.92	8127				
113 08:57:06	126.47	27625	113 09:16:24	152.29	18680	113 17:35:34	-53.44	8128							113 19:17:39	-78.96	8129				
113 10:39:07	100.96	27626	113 10:57:37	126.99	18681	113 20:59:44	-104.49	8130							113 22:41:48	-129.99	8131				
113 12:21:07	75.47	27627	113 12:38:51	101.67	18682																
113 14:03:08	49.96	27628	113 14:20:04	76.37	18683																
113 15:45:08	24.47	27629	113 16:01:17	51.06	18684																
113 17:27:09	-1.03	27630	113 17:42:30	25.76	18685																
113 19:09:10	-26.54	27631	113 19:23:43	.46	18686																
113 20:51:10	-52.03	27632	113 21:04:57	-24.86	18687																
113 22:33:11	-77.54	27633	113 22:46:10	-50.16	18688																
114 00:15:11	-103.03	27634	114 00:27:23	-75.46	18689	114 00:23:53	-155.52	8132							114 02:05:58	178.96	8133				
114 01:57:12	-128.54	27635	114 02:08:36	-100.77	18690	114 03:48:03	153.44	8134							114 05:30:08	127.92	8135				
114 03:39:12	-154.03	27636	114 03:49:49	-126.07	18691	114 07:12:12	102.41	8136							114 08:54:17	76.89	8137				
114 05:21:13	-179.54	27637	114 05:31:02	-151.37	18692	114 10:36:22	51.37	8138							114 12:18:27	25.84	8139				
114 07:03:13	154.97	27638	114 07:12:16	-176.69	18693	114 14:00:31	.34	8140							114 15:42:36	-25.19	8141				
114 08:45:14	129.46	27639	114 08:53:29	158.01	18694	114 17:24:41	-50.71	8142							114 19:06:46	-76.23	8143				
114 10:27:14	103.97	27640	114 10:34:42	132.71	18695	114 20:48:51	-101.75	8144							114 22:30:55	-127.26	8145				
114 12:09:15	78.47	27641	114 12:15:55	107.40	18696																
114 13:51:15	52.97	27642	114 13:57:08	82.10	18697																
114 15:33:16	27.47	27643	114 15:38:22	56.78	18698																
114 17:15:16	1.97	27644	114 17:19:35	31.48	18699																
114 18:57:17	-23.53	27645	114 19:00:48	6.18	18700																
114 20:39:17	-49.02	27646	114 20:42:01	-19.13	18701																
114 22:21:18	-74.53	27647	114 22:23:14	-44.43	18702																
115 00:03:18	-100.02	27648	115 00:04:28	-69.74	18703	115 00:13:00	-152.78	8146							115 01:45:41	-95.05	18704	115 01:55:05	-178.30	8147	
115 01:45:19	-125.53	27649	115 03:26:54	-120.35	18705	115 03:37:10	156.17	8148							115 05:08:07	-145.65	18706	115 05:19:14	130.66	8149	
115 03:27:19	-151.02	27650	115 06:49:20	-170.96	18707	115 07:01:19	105.14	8150							115 08:30:33	163.74	18708	115 08:43:24	79.62	8151	
115 05:09:20	-176.53	27651	115 10:11:47	138.42	18709	115 10:25:29	54.10	8152							115 11:53:00	113.12	18710	115 12:07:34	28.58	8153	
115 06:51:20	157.98	27652	115 13:34:13	87.82	18711	115 13:49:38	3.07	8154							115 15:15:26	62.52	18712	115 15:31:43	-22.45	8155	
115 08:33:21	132.47	27653	115 16:56:39	37.21	18713	115 17:13:48	-47.98	8156							115 18:37:53	11.90	18714	115 18:55:53	-73.50	8157	
115 10:15:21	106.98	27654	115 20:19:06	-13.41	18715	115 20:37:58	-99.02	8158							115 22:00:19	-38.71	18716	115 22:20:02	-124.53	8159	
115 11:57:22	81.47	27655	115 23:41:32	-64.01	18717																
115 13:39:22	55.98	27656																			
115 15:21:23	30.47	27657																			
115 17:03:23	4.98	27658																			
115 18:45:24	-20.52	27659																			
115 20:27:24	-46.02	27660																			
115 22:09:25	-71.52	27661																			
115 23:51:25	-97.02	27662																			

SATELLITE C3
Ascending Node Predictions
Predicting for 186 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

116 00:59:32	-127.88	29291
116 02:44:27	-154.24	29292
116 04:29:22	179.41	29293
116 06:14:17	153.05	29294
116 07:59:11	126.70	29295
116 09:44:06	100.34	29296
116 11:29:01	73.99	29297
116 13:13:56	47.64	29298
116 14:58:51	21.28	29299
116 16:43:46	-5.07	29300
116 18:28:40	-31.43	29301
116 20:13:35	-57.78	29302
116 21:58:30	-84.13	29303
116 23:43:25	-110.49	29304

SATELLITE C4
Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

116 00:24:39	103.56	4056
116 02:09:33	77.21	4057
116 03:54:26	50.86	4058
116 05:39:20	24.51	4059
116 07:24:14	-1.84	4060
116 09:09:08	-28.18	4061
116 10:54:02	-54.53	4062
116 12:38:55	-80.89	4063
116 14:23:49	-107.23	4064
116 16:08:43	-133.58	4065
116 17:53:37	-159.93	4066
116 19:38:30	173.72	4067
116 21:23:24	147.37	4068
116 23:08:18	121.02	4069

117 01:28:20	-136.84	29305
117 03:13:15	-163.19	29306
117 04:58:09	170.45	29307
117 06:43:04	144.10	29308
117 08:27:59	117.74	29309
117 10:12:54	91.39	29310
117 11:57:49	65.04	29311
117 13:42:44	38.68	29312
117 15:27:38	12.33	29313
117 17:12:33	-14.03	29314
117 18:57:28	-40.38	29315
117 20:42:23	-66.73	29316
117 22:27:18	-93.09	29317

117 00:53:12	94.67	4070
117 02:38:06	68.32	4071
117 04:22:59	41.97	4072
117 06:07:53	15.62	4073
117 07:52:47	-10.73	4074
117 09:37:41	-37.08	4075
117 11:22:34	-63.43	4076
117 13:07:28	-89.78	4077
117 14:52:22	-116.13	4078
117 16:37:16	-142.48	4079
117 18:22:10	-168.83	4080
117 20:07:03	164.82	4081
117 21:51:57	138.47	4082
117 23:36:51	112.12	4083

118 00:12:13	-119.44	29318
118 01:57:07	-145.80	29319
118 03:42:02	-172.15	29320
118 05:26:57	161.50	29321
118 07:11:52	135.14	29322
118 08:56:47	108.79	29323
118 10:41:42	82.43	29324
118 12:26:36	56.08	29325
118 14:11:31	29.73	29326
118 15:56:26	3.37	29327
118 17:41:21	-22.98	29328
118 19:26:16	-49.34	29329
118 21:11:11	-75.69	29330
118 22:56:05	-102.05	29331

118 01:21:45	85.78	4084
118 03:06:38	59.42	4085
118 04:51:32	33.07	4086
118 06:36:26	6.73	4087
118 08:21:20	-19.62	4088
118 10:06:14	-45.97	4089
118 11:51:07	-72.32	4090
118 13:36:01	-98.67	4091
118 15:20:55	-125.02	4092
118 17:05:49	-151.37	4093
118 18:50:43	-177.72	4094
118 20:35:36	155.93	4095
118 22:20:30	129.58	4096

119 00:41:00	-128.40	29332
119 02:25:55	-154.75	29333
119 04:10:50	178.89	29334
119 05:55:45	152.54	29335
119 07:40:40	126.19	29336
119 09:25:34	99.83	29337
119 11:10:29	73.48	29338
119 12:55:24	47.12	29339
119 14:40:19	20.77	29340
119 16:25:14	-5.58	29341
119 18:10:09	-31.94	29342
119 19:55:03	-58.29	29343
119 21:39:58	-84.65	29344
119 23:24:53	-111.00	29345

119 00:05:24	103.23	4097
119 01:50:18	76.88	4098
119 03:35:11	50.53	4099
119 05:20:05	24.18	4100
119 07:04:59	-2.17	4101
119 08:49:53	-28.52	4102
119 10:34:47	-54.87	4103
119 12:19:40	-81.22	4104
119 14:04:34	-107.57	4105
119 15:49:28	-133.92	4106
119 17:34:22	-160.26	4107
119 19:19:15	173.38	4108
119 21:04:09	147.03	4109
119 22:49:03	120.69	4110

SATELLITE S2						SATELLITE S3						SATELLITE S4					
Ascending Node Predictions						Ascending Node Predictions						Ascending Node Predictions					
Predicting for 184 days						Predicting for 184 days						Predicting for 184 days					
TIME (GMT)	E LONG	ORBIT	TIME (GMT)	E LONG	ORBIT	TIME (GMT)	E LONG	ORBIT	TIME (GMT)	E LONG	ORBIT	TIME (GMT)	E LONG	ORBIT	TIME (GMT)	E LONG	ORBIT
day	hr	mn	sc	deg	dg	day	hr	mn	sc	deg	dg	day	hr	mn	sc	deg	dg
116 01:33:26	-122.52	27663	116 01:22:45	-89.32	18718	116 00:02:07	-150.05	8160									
116 03:15:26	-148.01	27664	116 03:03:59	-114.63	18719	116 01:44:12	-175.57	8161									
116 04:57:27	-173.52	27665	116 04:45:12	-139.93	18720	116 03:26:17	158.91	8162									
116 06:39:27	160.99	27666	116 06:26:25	-165.24	18721	116 05:08:21	133.40	8163									
116 08:21:28	135.48	27667	116 08:07:38	169.46	18722	116 06:50:26	107.88	8164									
116 10:03:28	109.99	27668	116 09:48:51	144.16	18723	116 08:32:31	82.35	8165									
116 11:45:29	84.48	27669	116 11:30:04	118.85	18724	116 10:14:36	56.83	8166									
116 13:27:29	58.99	27670	116 13:11:18	93.54	18725	116 11:56:41	31.31	8167									
116 15:09:30	33.48	27671	116 14:52:31	68.23	18726	116 13:38:45	5.80	8168									
116 16:51:30	7.99	27672	116 16:33:44	42.93	18727	116 15:20:50	-19.72	8169									
116 18:33:31	-17.52	27673	116 18:14:57	17.63	18728	116 17:02:55	-45.24	8170									
116 20:15:31	-43.01	27674	116 19:56:10	-7.67	18729	116 18:45:00	-70.76	8171									
116 21:57:32	-68.52	27675	116 21:37:24	-32.99	18730	116 20:27:04	-96.27	8172									
116 23:39:32	-94.01	27676	116 23:18:37	-58.29	18731	116 22:09:09	-121.79	8173									
						116 23:51:14	-147.32	8174									
117 01:21:33	-119.51	27677	117 00:59:50	-83.60	18732	117 01:33:19	-172.84	8175									
117 03:03:33	-145.01	27678	117 02:41:03	-108.90	18733	117 03:15:24	161.64	8176									
117 04:45:34	-170.51	27679	117 04:22:16	-134.20	18734	117 04:57:28	136.13	8177									
117 06:27:34	163.99	27680	117 06:03:30	-159.52	18735	117 06:39:33	110.61	8178									
117 08:09:35	138.49	27681	117 07:44:43	175.18	18736	117 08:21:38	85.09	8179									
117 09:51:35	113.00	27682	117 09:25:56	149.87	18737	117 10:03:43	59.57	8180									
117 11:33:36	87.49	27683	117 11:07:09	124.57	18738	117 11:45:47	34.06	8181									
117 13:15:36	62.00	27684	117 12:48:22	99.27	18739	117 13:27:52	8.54	8182									
117 14:57:37	36.49	27685	117 14:29:35	73.97	18740	117 15:09:57	-16.99	8183									
117 16:39:37	11.00	27686	117 16:10:49	48.65	18741	117 16:52:02	-42.51	8184									
117 18:21:38	-14.51	27687	117 17:52:02	23.35	18742	117 18:34:07	-68.03	8185									
117 20:03:38	-40.00	27688	117 19:33:15	-1.96	18743	117 20:16:11	-93.54	8186									
117 21:45:39	-65.51	27689	117 21:14:28	-27.26	18744	117 21:58:16	-119.06	8187									
117 23:27:39	-91.00	27690	117 22:55:41	-52.56	18745	117 23:40:21	-144.58	8188									
118 01:09:40	-116.51	27691	118 00:36:55	-77.88	18746	118 01:22:26	-170.10	8189									
118 02:51:40	-142.00	27692	118 02:18:08	-103.18	18747	118 03:04:30	164.39	8190									
118 04:33:41	-167.51	27693	118 03:59:21	-128.48	18748	118 04:46:35	138.87	8191									
118 06:15:41	167.00	27694	118 05:40:34	-153.79	18749	118 06:28:40	113.34	8192									
118 07:57:42	141.50	27695	118 07:21:47	-179.09	18750	118 08:01:45	87.82	8193									
118 09:39:42	116.00	27696	118 09:03:01	155.59	18751	118 09:52:50	62.30	8194									
118 11:21:43	90.50	27697	118 10:44:14	130.29	18752	118 11:34:54	36.79	8195									
118 13:03:43	65.00	27698	118 12:25:27	104.99	18753	118 13:16:59	11.27	8196									
118 14:45:44	39.50	27699	118 14:06:40	79.68	18754	118 14:59:04	-14.25	8197									
118 16:27:44	14.01	27700	118 15:47:53	54.38	18755	118 16:41:09	-39.77	8198									
118 18:09:45	-11.50	27701	118 17:29:06	29.08	18756	118 18:23:14	-65.30	8199									
118 19:51:45	-36.99	27702	118 19:10:20	3.76	18757	118 20:05:18	-90.81	8200									
118 21:33:46	-62.50	27703	118 20:51:33	-21.54	18758	118 21:47:23	-116.33	8201									
118 23:15:46	-87.99	27704	118 22:32:46	-46.84	18759	118 23:29:28	-141.85	8202									
119 00:57:47	-113.50	27705	119 00:13:59	-72.15	18760	119 01:11:33	-167.37	8203									
119 02:39:47	-138.99	27706	119 01:55:12	-97.45	18761	119 02:53:37	167.12	8204									
119 04:21:48	-164.50	27707	119 03:36:26	-122.77	18762	119 04:35:42	141.60	8205									
119 06:03:48	170.01	27708	119 05:17:39	-148.07	18763	119 06:17:47	116.08	8206									
119 07:45:49	144.50	27709	119 06:58:52	-173.37	18764	119 07:59:52	90.55	8207									
119 09:27:49	119.01	27710	119 08:40:05	161.33	18765	119 09:41:57	65.03	8208									
119 11:09:50	93.50	27711	119 10:21:18	136.02	18766	119 11:24:01	39.52	8209									
119 12:51:50	68.01	27712	119 12:02:32	110.71	18767	119 13:06:06	14.00	8210									
119 14:33:51	42.51	27713	119 13:43:45	85.40	18768	119 14:48:11	-11.52	8211									
119 16:15:52	17.00	27714	119 15:24:58	60.10	18769	119 16:30:16	-37.04	8212									
119 17:57:52	-8.49	27715	119 17:06:11	34.80	18770	119 18:12:20	-62.55	8213									
119 19:39:53	-34.00	27716	119 18:47:24	9.49	18771	119 19:54:25	-88.07	8214									
119 21:21:53	-59.49	27717	119 20:28:37	-15.81	18772	119 21:36:30	-113.59	8215									
119 23:03:54	-85.00	27718	119 22:09:51	-41.13	18773	119 23:18:35	-139.12	8216									
			119 23:51:04	-66.43	18774												

SATELLITE C3
Ascending Node Predictions
Predicting for 186 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

120	01:09:48	-137.35	29346
120	02:54:43	-163.71	29347
120	04:39:38	169.94	29348
120	06:24:32	143.58	29349
120	08:09:27	117.23	29350
120	09:54:22	90.88	29351
120	11:39:17	64.52	29352
120	13:24:12	38.17	29353
120	15:09:07	11.82	29354
120	16:54:01	-14.54	29355
120	18:38:56	-40.89	29356
120	20:23:51	-67.25	29357
120	22:08:46	-93.60	29358
120	23:53:41	-119.95	29359

SATELLITE C4
Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

120	00:33:57	94.34	4111
120	02:18:51	67.99	4112
120	04:03:44	41.64	4113
120	05:48:38	15.29	4114
120	07:33:32	-11.06	4115
120	09:18:26	-37.41	4116
120	11:03:19	-63.76	4117
120	12:48:13	-90.11	4118
120	14:33:07	-116.46	4119
120	16:18:01	-142.81	4120
120	18:02:55	-169.16	4121
120	19:47:48	164.49	4122
120	21:32:42	138.14	4123
120	23:17:36	111.79	4124

121	01:38:36	-146.31	29360
121	03:23:30	-172.66	29361
121	05:08:25	160.98	29362
121	06:53:20	134.63	29363
121	08:38:15	108.28	29364
121	10:23:10	81.92	29365
121	12:08:05	55.57	29366
121	13:52:59	29.21	29367
121	15:37:54	2.86	29368
121	17:22:49	-23.50	29369
121	19:07:44	-49.85	29370
121	20:52:39	-76.20	29371
121	22:37:34	-102.56	29372

121	01:02:30	83.44	4125
121	02:47:24	59.09	4126
121	04:32:17	32.74	4127
121	06:17:11	6.39	4128
121	08:02:05	-19.96	4129
121	09:46:59	-46.30	4130
121	11:31:52	-72.66	4131
121	13:16:46	-99.00	4132
121	15:01:40	-125.35	4133
121	16:46:34	-151.70	4134
121	18:31:28	-178.05	4135
121	20:16:21	155.60	4136
121	22:01:15	129.25	4137
121	23:46:09	102.90	4138

122	00:22:28	-128.91	29373
122	02:07:23	-155.27	29374
122	03:52:18	178.38	29375
122	05:37:13	152.03	29376
122	07:22:08	125.67	29377
122	09:07:03	99.32	29378
122	10:51:57	72.96	29379
122	12:36:52	46.61	29380
122	14:21:47	20.26	29381
122	16:06:42	-6.10	29382
122	17:51:37	-32.45	29383
122	19:36:32	-58.80	29384
122	21:21:26	-85.16	29385
122	23:06:21	-111.51	29386

122	01:31:03	76.55	4139
122	03:15:56	50.20	4140
122	05:00:50	23.85	4141
122	06:45:44	-2.50	4142
122	08:30:38	-28.85	4143
122	10:15:32	-55.20	4144
122	12:00:25	-81.55	4145
122	13:45:19	-107.90	4146
122	15:30:13	-134.25	4147
122	17:15:07	-160.60	4148
122	19:00:00	173.05	4149
122	20:44:54	146.70	4150
122	22:29:48	120.35	4151

123	00:51:16	-137.87	29387
123	02:36:11	-164.22	29388
123	04:21:06	169.43	29389
123	06:06:01	143.07	29390
123	07:50:55	116.72	29391
123	09:35:50	90.36	29392
123	11:20:45	64.01	29393
123	13:05:40	37.66	29394
123	14:50:35	11.30	29395
123	16:35:30	-15.05	29396
123	18:20:24	-41.41	29397
123	20:05:19	-67.76	29398
123	21:50:14	-94.11	29399
123	23:35:09	-120.47	29400

123	00:14:42	94.00	4152
123	01:59:36	67.66	4153
123	03:44:29	41.30	4154
123	05:29:23	14.96	4155
123	07:14:17	-11.39	4156
123	08:59:11	-37.74	4157
123	10:44:05	-64.09	4158
123	12:28:58	-90.44	4159
123	14:13:52	-116.79	4160
123	15:58:46	-143.14	4161
123	17:43:40	-169.49	4162
123	19:28:33	164.16	4163
123	21:13:27	137.81	4164
123	22:58:21	111.46	4165

SATELLITE S2

Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

120 00:45:54	-110.49	27719
120 02:27:55	-136.00	27720
120 04:09:55	-161.49	27721
120 05:51:56	173.00	27722
120 07:33:56	147.51	27723
120 09:15:57	122.00	27724
120 10:57:57	96.51	27725
120 12:39:58	71.01	27726
120 14:21:58	45.51	27727
120 16:03:59	20.01	27728
120 17:45:59	-5.49	27729
120 19:28:00	-30.99	27730
120 21:10:00	-56.48	27731
120 22:52:01	-81.99	27732

SATELLITE S3

Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

120 01:32:17	-91.73	18775
120 03:13:30	-117.03	18776
120 04:54:43	-142.34	18777
120 06:35:57	-167.65	18778
120 08:17:10	167.04	18779
120 09:58:23	141.74	18780
120 11:39:36	116.44	18781
120 13:20:49	91.13	18782
120 15:02:02	65.83	18783
120 16:43:16	40.52	18784
120 18:24:29	15.21	18785
120 20:05:42	-10.09	18786
120 21:46:55	-35.39	18787
120 23:28:08	-60.70	18788

SATELLITE S4

Ascending Node Predictions
Predicting for 184 days
TIME (GMT) E LONG ORBIT
day hr mn sc deg dg

120 01:00:40	-164.64	8217
120 02:42:44	169.85	8218
120 04:24:49	144.33	8219
120 06:06:54	118.81	8220
120 07:48:59	93.29	8221
120 09:31:03	67.78	8222
120 11:13:08	42.26	8223
120 12:55:13	16.74	8224
120 14:37:18	-8.79	8225
120 16:19:23	-34.31	8226
120 18:01:27	-59.82	8227
120 19:43:32	-85.34	8228
120 21:25:37	-110.86	8229
120 23:07:42	-136.38	8230

121 00:34:01	-107.48	27733
121 02:16:02	-132.99	27734
121 03:58:02	-158.48	27735
121 05:40:03	176.01	27736
121 07:22:03	150.52	27737
121 09:04:04	125.01	27738
121 10:46:04	99.52	27739
121 12:28:05	74.01	27740
121 14:10:05	48.52	27741
121 15:52:06	23.01	27742
121 17:34:06	-2.48	27743
121 19:16:07	-27.98	27744
121 20:58:07	-53.48	27745
121 22:40:08	-78.98	27746

121 01:09:22	-86.01	18789
121 02:50:35	-111.32	18790
121 04:31:48	-136.62	18791
121 06:13:01	-161.92	18792
121 07:54:14	172.78	18793
121 09:35:28	147.46	18794
121 11:16:41	122.16	18795
121 12:57:54	96.85	18796
121 14:39:07	71.55	18797
121 16:20:20	46.25	18798
121 18:01:33	20.94	18799
121 19:42:47	-4.37	18800
121 21:24:00	-29.68	18801
121 23:05:13	-54.98	18802

121 00:49:46	-161.89	8231
121 02:31:51	172.59	8232
121 04:13:56	147.07	8233
121 05:56:01	121.54	8234
121 07:38:06	96.02	8235
121 09:20:10	70.51	8236
121 11:02:15	44.99	8237
121 12:44:20	19.47	8238
121 14:26:25	-6.05	8239
121 16:08:29	-31.56	8240
121 17:50:34	-57.08	8241
121 19:32:39	-82.61	8242
121 21:14:44	-108.13	8243
121 22:56:49	-133.65	8244

122 00:22:08	-104.48	27747
122 02:04:09	-129.98	27748
122 03:46:09	-155.48	27749
122 05:28:10	179.02	27750
122 07:10:10	153.53	27751
122 08:52:11	128.02	27752
122 10:34:11	102.53	27753
122 12:16:12	77.02	27754
122 13:58:12	51.53	27755
122 15:40:13	26.02	27756
122 17:22:13	.53	27757
122 19:04:14	-24.98	27758
122 20:46:14	-50.47	27759
122 22:28:15	-75.98	27760

122 00:46:26	-80.28	18803
122 02:27:39	-105.58	18804
122 04:08:53	-130.90	18805
122 05:50:06	-156.20	18806
122 07:31:19	178.49	18807
122 09:12:32	153.19	18808
122 10:53:45	127.89	18809
122 12:34:58	102.58	18810
122 14:16:12	77.27	18811
122 15:57:25	51.97	18812
122 17:38:38	26.66	18813
122 19:19:51	1.36	18814
122 21:01:04	-23.94	18815
122 22:42:18	-49.26	18816

122 00:38:53	-159.16	8245
122 02:20:58	175.32	8246
122 04:03:03	149.80	8247
122 05:45:08	124.28	8248
122 07:27:12	98.77	8249
122 09:09:17	73.25	8250
122 10:51:22	47.72	8251
122 12:33:27	22.20	8252
122 14:15:32	-3.32	8253
122 15:57:36	-28.83	8254
122 17:39:41	-54.35	8255
122 19:21:46	-79.87	8256
122 21:03:51	-105.39	8257
122 22:45:55	-130.90	8258

123 00:10:15	-101.47	27761
123 01:52:16	-126.97	27762
123 03:34:16	-152.47	27763
123 05:16:17	-177.97	27764
123 06:58:17	136.53	27765
123 08:40:18	131.03	27766
123 10:22:18	105.53	27767
123 12:04:19	80.03	27768
123 13:46:19	54.54	27769
123 15:28:20	29.03	27770
123 17:10:20	3.54	27771
123 18:52:21	-21.97	27772
123 20:34:21	-47.46	27773
123 22:16:22	-72.97	27774
123 23:58:22	-98.46	27775

123 00:23:31	-74.56	18817
123 02:04:44	-99.87	18818
123 03:45:57	-123.17	18819
123 05:27:10	-150.47	18820
123 07:08:24	-175.79	18821
123 08:49:37	158.91	18822
123 10:30:50	133.61	18823
123 12:12:03	108.30	18824
123 13:53:16	83.00	18825
123 15:34:29	57.70	18826
123 17:15:43	32.38	18827
123 18:56:56	7.06	18828
123 20:38:09	-18.23	18829
123 22:19:22	-43.53	18830

123 00:28:00	-156.42	8259
123 02:10:05	178.05	8260
123 03:52:10	152.53	8261
123 05:34:15	127.01	8262
123 07:16:19	101.50	8263
123 08:58:24	75.98	8264
123 10:40:29	50.46	8265
123 12:22:34	24.94	8266
123 14:04:38	-.57	8267
123 15:46:43	-26.09	8268
123 17:28:48	-51.62	8269
123 19:10:53	-77.14	8270
123 20:52:58	-102.66	8271
123 22:35:02	-128.17	8272

SATELLITE C3**Ascending Node Predictions****Predicting for 186 days**

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

124 01:20:04	-146.82	29401
124 03:04:59	-173.17	29402
124 04:49:53	160.47	29403
124 06:34:48	134.12	29404
124 08:19:43	107.76	29405
124 10:04:38	81.41	29406
124 11:49:33	55.06	29407
124 13:34:28	28.70	29408
124 15:19:22	2.35	29409
124 17:04:17	-24.01	29410
124 18:49:12	-50.36	29411
124 20:34:07	-76.71	29412
124 22:19:02	-103.07	29413

SATELLITE C4**Ascending Node Predictions****Predicting for 184 days**

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

124 00:43:15	85.11	4166
124 02:28:09	58.76	4167
124 04:13:02	32.41	4168
124 05:57:56	6.06	4169
124 07:42:50	-20.29	4170
124 09:27:44	-46.64	4171
124 11:12:37	-72.99	4172
124 12:57:31	-99.34	4173
124 14:42:25	-125.69	4174
124 16:27:19	-152.03	4175
124 18:12:13	-178.38	4176
124 19:57:06	155.26	4177
124 21:42:00	128.92	4178
124 23:26:54	102.57	4179

125 00:03:57	-129.42	29414
125 01:48:51	-155.78	29415
125 03:33:46	177.87	29416
125 05:18:41	151.52	29417
125 07:03:36	125.16	29418
125 08:48:31	98.81	29419
125 10:33:25	72.45	29420
125 12:18:20	46.10	29421
125 14:03:15	19.75	29422
125 15:48:10	-6.61	29423
125 17:33:05	-32.96	29424
125 19:18:00	-59.32	29425
125 21:02:54	-85.67	29426
125 22:47:49	-112.02	29427

125 01:11:48	76.22	4180
125 02:56:41	49.87	4181
125 04:41:35	23.52	4182
125 06:26:29	-2.83	4183
125 08:11:23	-29.18	4184
125 09:56:17	-55.53	4185
125 11:41:10	-81.88	4186
125 13:26:04	-108.23	4187
125 15:10:58	-134.58	4188
125 16:55:52	-160.93	4189
125 18:40:45	172.72	4190
125 20:25:39	146.37	4191
125 22:10:33	120.02	4192
125 23:55:27	93.67	4193

126 00:32:44	-138.38	29428
126 02:17:39	-164.73	29429
126 04:02:34	168.91	29430
126 05:47:29	142.56	29431
126 07:32:23	116.20	29432
126 09:17:18	89.85	29433
126 11:02:13	63.50	29434
126 12:47:08	37.14	29435
126 14:32:03	10.79	29436
126 16:16:58	-15.56	29437
126 18:01:52	-41.92	29438
126 19:46:47	-68.27	29439
126 21:31:42	-94.63	29440
126 23:16:37	-120.98	29441

126 01:40:21	67.32	4194
126 03:25:14	40.97	4195
126 05:10:08	14.62	4196
126 06:55:02	-11.73	4197
126 08:39:56	-38.07	4198
126 10:24:49	-64.43	4199
126 12:09:43	-90.77	4200
126 13:54:37	-117.12	4201
126 15:39:31	-143.47	4202
126 17:24:25	-169.82	4203
126 19:09:18	163.83	4204
126 20:54:12	137.48	4205
126 22:39:06	111.13	4206

127 01:01:32	-147.33	29442
127 02:46:27	-173.69	29443
127 04:31:21	159.96	29444
127 06:16:16	133.60	29445
127 08:01:11	107.25	29446
127 09:46:06	80.90	29447
127 11:31:01	54.54	29448
127 13:15:56	28.19	29449
127 15:00:50	1.83	29450
127 16:45:45	-24.52	29451
127 18:30:40	-50.87	29452
127 20:15:35	-77.23	29453
127 22:00:30	-103.58	29454
127 23:45:24	-129.94	29455

127 00:24:00	84.78	4207
127 02:08:53	58.43	4208
127 03:53:47	32.08	4209
127 05:38:41	5.73	4210
127 07:23:35	-20.62	4211
127 09:08:29	-46.97	4212
127 10:53:22	-73.32	4213
127 12:38:16	-99.67	4214
127 14:23:10	-126.02	4215
127 16:08:04	-152.37	4216
127 17:52:57	-178.72	4217
127 19:37:51	154.93	4218
127 21:22:45	128.58	4219
127 23:07:39	102.24	4220

SATELLITE S2

Ascending Node Predictions
 Predicting for 184 days
 TIME (GMT) E LONG ORBIT
 day hr mn sc deg dg

124 01:40:23	-123.97	27776
124 03:22:23	-149.46	27777
124 05:04:24	-174.97	27778
124 06:46:24	159.54	27779
124 08:28:25	134.03	27780
124 10:10:25	108.54	27781
124 11:52:26	83.04	27782
124 13:34:26	57.54	27783
124 15:16:27	32.04	27784
124 16:58:27	6.54	27785
124 18:40:28	-18.96	27786
124 20:22:28	-44.45	27787
124 22:04:29	-69.96	27788
124 23:46:29	-95.45	27789

SATELLITE S3

Ascending Node Predictions
 Predicting for 184 days
 TIME (GMT) E LONG ORBIT
 day hr mn sc deg dg

124 00:00:35	-68.83	18831
124 01:41:49	-94.15	18832
124 03:23:02	-119.45	18833
124 05:04:15	-144.75	18834
124 06:45:28	-170.06	18835
124 08:26:41	164.64	18836
124 10:07:54	139.34	18837
124 11:49:08	114.02	18838
124 13:30:21	88.72	18839
124 15:11:34	63.42	18840
124 16:52:47	38.11	18841
124 18:34:00	12.81	18842
124 20:15:14	-12.51	18843
124 21:56:27	-37.81	18844
124 23:37:40	-63.11	18845

SATELLITE S4

Ascending Node Predictions
 Predicting for 184 days
 TIME (GMT) E LONG ORBIT
 day hr mn sc deg dg

124 00:17:07	-153.69	8273
124 01:59:12	-179.21	8274
124 03:41:17	155.27	8275
124 05:23:21	129.76	8276
124 07:05:26	104.23	8277
124 08:47:31	78.71	8278
124 10:29:36	53.19	8279
124 12:11:41	27.67	8280
124 13:53:45	2.16	8281
124 15:35:50	-23.36	8282
124 17:17:55	-48.88	8283
124 19:00:00	-74.41	8284
124 20:42:04	-99.91	8285
124 22:24:09	-125.44	8286

125 01:28:30	-120.96	27790
125 03:10:30	-146.45	27791
125 04:52:31	-171.96	27792
125 06:34:31	162.55	27793
125 08:16:32	137.04	27794
125 09:58:32	111.55	27795
125 11:40:33	86.04	27796
125 13:22:33	60.55	27797
125 15:04:34	35.04	27798
125 16:46:34	9.55	27799
125 18:28:35	-15.95	27800
125 20:10:35	-41.45	27801
125 21:52:36	-66.95	27802
125 23:34:36	-92.45	27803

125 01:18:53	-88.42	18846
125 03:00:06	-113.72	18847
125 04:41:20	-139.04	18848
125 06:22:33	-164.34	18849
125 08:03:46	170.36	18850
125 09:44:59	145.06	18851
125 11:26:12	119.75	18852
125 13:07:25	94.45	18853
125 14:48:39	69.13	18854
125 16:29:52	43.83	18855
125 18:11:05	18.53	18856
125 19:52:18	-6.78	18857
125 21:33:31	-32.08	18858
125 23:14:45	-57.39	18859

125 00:06:14	-150.96	8287
125 01:48:19	-176.48	8288
125 03:30:24	158.00	8289
125 05:12:28	132.49	8290
125 06:54:33	106.97	8291
125 08:36:38	81.45	8292
125 10:18:43	55.92	8293
125 12:00:47	30.42	8294
125 13:42:52	4.89	8295
125 15:24:57	-20.63	8296
125 17:07:02	-46.15	8297
125 18:49:07	-71.67	8298
125 20:31:11	-97.18	8299
125 22:13:16	-122.70	8300
125 23:55:21	-148.22	8301

126 01:16:37	-117.95	27804
126 02:58:37	-143.45	27805
126 04:40:38	-168.95	27806
126 06:22:38	165.56	27807
126 08:04:39	140.05	27808
126 09:46:39	114.56	27809
126 11:28:40	89.05	27810
126 13:10:40	63.56	27811
126 14:52:41	38.05	27812
126 16:34:41	12.56	27813
126 18:16:42	-12.95	27814
126 19:58:42	-38.44	27815
126 21:40:43	-63.95	27816
126 23:22:43	-89.44	27817

126 00:55:58	-82.70	18860
126 02:37:11	-108.00	18861
126 04:18:24	-133.30	18862
126 05:59:37	-158.61	18863
126 07:40:50	176.09	18864
126 09:22:04	150.77	18865
126 11:03:17	125.47	18866
126 12:44:30	100.17	18867
126 14:25:43	74.86	18868
126 16:06:56	49.56	18869
126 17:48:10	24.25	18870
126 19:29:23	-1.06	18871
126 21:10:36	-26.36	18872
126 22:51:49	-51.66	18873

126 01:37:26	-173.75	8302
126 03:19:30	160.74	8303
126 05:01:35	135.22	8304
126 06:43:40	109.70	8305
126 08:25:45	84.18	8306
126 10:07:50	58.66	8307
126 11:49:54	33.15	8308
126 13:31:59	7.63	8309
126 15:14:04	-17.90	8310
126 16:56:09	-43.42	8311
126 18:38:13	-68.93	8312
126 20:20:18	-94.45	8313
126 22:02:23	-119.97	8314
126 23:44:28	-145.49	8315

127 01:04:44	-114.94	27818
127 02:46:44	-140.44	27819
127 04:28:45	-165.94	27820
127 06:10:45	168.56	27821
127 07:52:46	143.06	27822
127 09:34:46	117.56	27823
127 11:16:47	92.06	27824
127 12:58:47	66.57	27825
127 14:40:48	41.06	27826
127 16:22:48	15.57	27827
127 18:04:49	-9.94	27828
127 19:46:49	-35.43	27829
127 21:28:50	-60.94	27830
127 23:10:50	-86.43	27831

127 00:33:02	-76.97	18874
127 02:14:15	-102.27	18875
127 03:55:29	-127.59	18876
127 05:36:42	-152.89	18877
127 07:17:55	-178.19	18878
127 08:59:08	156.51	18879
127 10:40:21	131.20	18880
127 12:21:35	105.89	18881
127 14:02:48	80.58	18882
127 15:44:01	55.28	18883
127 17:25:14	29.98	18884
127 19:06:27	4.67	18885
127 20:47:41	-20.64	18886
127 22:28:54	-45.95	18887

127 01:26:33	-171.01	8316
127 03:08:37	163.48	8317
127 04:50:42	137.96	8318
127 06:32:47	112.43	8319
127 08:14:52	86.91	8320
127 09:56:56	61.40	8321
127 11:39:01	35.88	8322
127 13:21:06	10.36	8323
127 15:03:11	-15.16	8324
127 16:45:16	-40.68	8325
127 18:27:20	-66.19	8326
127 20:09:25	-91.71	8327
127 21:51:30	-117.24	8328
127 23:33:35	-142.76	8329

SATELLITE C3**Ascending Node Predictions****Predicting for 186 days**

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

128 01:30:19	-156.29	29456
128 03:15:14	177.36	29457
128 05:00:09	151.00	29458
128 06:45:04	124.65	29459
128 08:29:59	98.30	29460
128 10:14:53	71.94	29461
128 11:59:48	45.59	29462
128 13:44:43	19.23	29463
128 15:29:38	-7.12	29464
128 17:14:33	-33.47	29465
128 18:59:28	-59.83	29466
128 20:44:22	-86.18	29467
128 22:29:17	-112.54	29468

SATELLITE C4**Ascending Node Predictions****Predicting for 184 days**

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

128 00:52:33	75.89	4221
128 02:37:26	49.53	4222
128 04:22:20	23.19	4223
128 06:07:14	-3.16	4224
128 07:52:08	-29.51	4225
128 09:37:01	-55.86	4226
128 11:21:55	-82.21	4227
128 13:06:49	-108.56	4228
128 14:51:43	-134.91	4229
128 16:36:37	-161.26	4230
128 18:21:30	172.39	4231
128 20:06:24	146.04	4232
128 21:51:18	119.69	4233
128 23:36:12	93.34	4234

129 00:14:12	-138.89	29469
129 01:59:07	-165.24	29470
129 03:44:02	168.40	29471
129 05:28:57	142.05	29472
129 07:13:51	115.69	29473
129 08:58:46	89.34	29474
129 10:43:41	62.99	29475
129 12:28:36	36.63	29476
129 14:13:31	10.28	29477
129 15:58:25	-16.08	29478
129 17:43:20	-42.43	29479
129 19:28:15	-68.78	29480
129 21:13:10	-95.14	29481
129 22:58:05	-121.49	29482

129 01:21:05	66.99	4235
129 03:05:59	40.64	4236
129 04:50:53	14.29	4237
129 06:35:47	-12.06	4238
129 08:20:41	-38.41	4239
129 10:05:34	-64.76	4240
129 11:50:28	-91.11	4241
129 13:35:22	-117.45	4242
129 15:20:16	-143.80	4243
129 17:05:09	-170.16	4244
129 18:50:03	163.50	4245
129 20:34:57	137.15	4246
129 22:19:51	110.80	4247

130 00:43:00	-147.84	29483
130 02:27:54	-174.20	29484
130 04:12:49	159.45	29485
130 05:57:44	133.09	29486
130 07:42:39	106.74	29487
130 09:27:34	80.39	29488
130 11:12:29	54.03	29489
130 12:57:23	27.68	29490
130 14:42:18	1.32	29491
130 16:27:13	-25.03	29492
130 18:12:08	-51.38	29493
130 19:57:03	-77.74	29494
130 21:41:57	-104.09	29495
130 23:26:52	-130.45	29496

130 00:04:45	84.43	4248
130 01:49:38	58.10	4249
130 03:34:32	31.75	4250
130 05:19:26	5.40	4251
130 07:04:20	-20.95	4252
130 08:49:13	-47.30	4253
130 10:34:07	-73.65	4254
130 12:19:01	-100.00	4255
130 14:03:55	-126.35	4256
130 15:48:49	-152.70	4257
130 17:33:42	-179.05	4258
130 19:18:36	154.60	4259
130 21:03:30	128.25	4260
130 22:48:24	101.90	4261

131 01:11:47	-156.80	29497
131 02:56:42	176.85	29498
131 04:41:37	150.49	29499
131 06:26:32	124.14	29500
131 08:11:26	97.78	29501
131 09:56:21	71.43	29502
131 11:41:16	45.08	29503
131 13:26:11	18.72	29504
131 15:11:06	-7.63	29505
131 16:56:01	-33.98	29506
131 18:40:55	-60.34	29507
131 20:25:50	-86.69	29508
131 22:10:45	-113.05	29509
131 23:55:40	-139.40	29510

131 00:33:17	75.55	4262
131 02:18:11	49.20	4263
131 04:03:05	22.86	4264
131 05:47:59	-3.49	4265
131 07:32:53	-29.84	4266
131 09:17:46	-56.19	4267
131 11:02:40	-82.54	4268
131 12:47:34	-108.89	4269
131 14:32:28	-135.24	4270
131 16:17:21	-161.59	4271
131 18:02:15	172.06	4272
131 19:47:09	145.71	4273
131 21:32:03	119.36	4274
131 23:16:57	93.01	4275

SATELLITE S2				SATELLITE S3				SATELLITE S4									
Ascending Node Predictions				Ascending Node Predictions				Ascending Node Predictions									
Predicting for 184 days				Predicting for 184 days				Predicting for 184 days									
TIME (GMT)	E LONG	ORBIT	TIME (GMT)	E LONG	ORBIT	TIME (GMT)	E LONG	ORBIT	day hr mn sc	deg dg	day hr mn sc	deg dg					
day	hr	mn	sc	deg	dg	day	hr	mn	sc	deg	dg	day	hr	mn	sc	deg	dg
128 00:52:51	-111.94	27832	128 00:10:07	-71.23	18888	128 01:15:39	-168.27	8330				128 01:04:46	-165.53	8344			
128 02:34:51	-137.43	27833	128 01:51:20	-96.55	18889	128 02:57:44	166.21	8331				128 02:46:51	168.94	8345			
128 04:16:52	-162.94	27834	128 03:32:33	-121.85	18890	128 04:39:49	140.69	8332				128 04:28:56	143.42	8346			
128 05:58:52	171.57	27835	128 05:13:46	-147.16	18891	128 06:21:54	115.17	8333				128 05:35:10	117.90	8347			
128 07:40:53	146.06	27836	128 06:55:00	-172.47	18892	128 08:03:59	89.65	8334				128 06:11:01	92.39	8348			
128 09:22:53	120.57	27837	128 08:36:13	162.22	18893	128 09:46:03	64.14	8335				128 08:41:25	-9.70	8352			
128 11:04:54	95.07	27838	128 10:17:26	136.92	18894	128 11:28:08	38.61	8336				128 10:30:13	13.09	8337			
128 12:46:54	69.57	27839	128 11:58:39	111.62	18895	128 13:10:13	-12.43	8338				128 14:52:18	-37.94	8339			
128 14:28:55	44.07	27840	128 13:39:52	86.31	18896	128 16:34:22	-63.46	8340				128 18:16:27	-88.98	8341			
128 16:10:55	18.57	27841	128 15:21:06	61.00	18897	128 19:58:32	-114.50	8342				128 21:40:37	-111.77	8345			
128 17:52:56	-6.93	27842	128 17:02:19	35.70	18898	128 23:22:42	-140.03	8343				128 23:11:48	-137.28	8357			
128 19:34:56	-32.43	27843	128 18:43:32	10.39	18899												
128 21:16:57	-57.93	27844	128 20:24:45	-14.91	18900												
128 22:58:57	-83.42	27845	128 22:05:58	-40.21	18901												
			128 23:47:11	-65.52	18902												
129 00:40:58	-108.93	27846	129 01:28:25	-90.83	18903	129 01:04:46	-165.53	8344				129 02:46:51	168.94	8345			
129 02:22:58	-134.42	27847	129 03:09:38	-116.14	18904	129 04:28:56	143.42	8346				129 04:18:03	146.16	8360			
129 04:04:59	-159.93	27848	129 04:50:51	-141.44	18905	129 06:11:01	117.90	8347				129 06:00:08	120.63	8361			
129 05:47:00	174.56	27849	129 06:32:04	-166.74	18906	129 07:53:05	92.39	8348				129 07:42:12	95.12	8362			
129 07:29:00	149.07	27850	129 08:13:17	167.95	18907	129 09:35:10	66.87	8349				129 09:24:17	69.60	8363			
129 09:11:01	123.57	27851	129 09:54:31	142.64	18908	129 11:17:15	41.35	8350				129 12:59:20	15.83	8351			
129 10:53:01	98.07	27852	129 11:35:44	117.34	18909	129 14:41:25	-9.70	8352				129 16:23:29	-35.20	8353			
129 12:35:02	72.57	27853	129 13:16:57	92.03	18910	129 18:05:34	-60.73	8354				129 19:47:39	-86.25	8355			
129 14:17:02	47.07	27854	129 14:58:10	66.73	18911	129 21:29:44	-111.77	8356				129 23:11:48	-137.28	8357			
129 15:59:03	21.57	27855	129 16:39:23	41.43	18912												
129 17:41:03	-3.93	27856	129 18:20:36	16.12	18913												
129 19:23:04	-29.43	27857	129 20:01:50	-9.19	18914												
129 21:05:04	-54.92	27858	129 21:43:03	-34.50	18915												
129 22:47:05	-80.43	27859	129 23:24:16	-59.80	18916												
130 00:29:05	-105.92	27860	130 01:05:29	-85.10	18917	130 00:53:53	-162.80	8358				130 02:35:58	171.68	8359			
130 02:11:06	-131.43	27861	130 02:46:42	-110.40	18918	130 04:18:03	146.16	8360				130 06:00:08	120.63	8361			
130 03:53:06	-156.92	27862	130 04:27:56	-135.72	18919	130 07:42:12	95.12	8362				130 09:24:17	69.60	8363			
130 05:35:07	177.57	27863	130 06:09:09	-161.02	18920	130 11:06:22	44.08	8364				130 12:48:27	18.56	8365			
130 07:17:07	152.08	27864	130 07:50:22	173.67	18921	130 14:30:31	-6.95	8366				130 16:12:36	-32.47	8367			
130 08:59:08	126.57	27865	130 09:31:35	148.37	18922	130 17:54:41	-57.99	8368				130 19:36:46	-83.52	8369			
130 10:41:08	101.08	27866	130 11:12:48	123.07	18923	130 21:18:51	-109.04	8370				130 23:00:55	-134.55	8371			
130 12:23:09	75.57	27867	130 12:54:01	97.76	18924												
130 14:05:09	50.08	27868	130 14:35:15	72.45	18925												
130 15:47:10	24.57	27869	130 16:16:28	47.14	18926												
130 17:29:10	- .92	27870	130 17:57:41	21.84	18927												
130 19:11:11	-26.42	27871	130 19:38:54	-3.46	18928												
130 20:53:11	-51.92	27872	130 21:20:07	-28.76	18929												
130 22:35:12	-77.42	27873	130 23:01:21	-54.08	18930												
131 00:17:12	-102.92	27874	131 00:42:34	-79.38	18931	131 00:43:00	-160.07	8372				131 02:25:05	174.41	8373			
131 01:59:13	-128.42	27875	131 02:23:47	-104.69	18932	131 04:07:10	148.89	8374				131 05:49:14	123.38	8375			
131 03:41:13	-153.91	27876	131 04:05:00	-129.99	18933	131 07:31:19	97.86	8376				131 09:13:24	72.34	8377			
131 05:23:14	-179.42	27877	131 05:46:13	-155.29	18934	131 10:55:29	46.81	8378				131 12:37:34	21.29	8379			
131 07:05:14	155.09	27878	131 07:27:27	179.39	18935	131 14:19:38	-4.22	8380				131 16:01:43	-29.74	8381			
131 08:47:15	129.58	27879	131 09:08:40	154.09	18936	131 17:43:48	-55.26	8382				131 19:25:53	-80.78	8383			
131 10:29:15	104.09	27880	131 10:49:53	128.78	18937	131 21:07:57	-106.29	8384				131 22:50:02	-131.81	8385			
131 12:11:16	78.58	27881	131 12:31:06	103.48	18938												
131 13:53:16	53.09	27882	131 14:12:19	78.18	18939												
131 15:35:17	27.58	27883	131 15:53:32	52.88	18940												
131 17:17:17	2.09	27884	131 17:34:46	27.56	18941												
131 18:59:18	-23.42	27885	131 19:15:59	2.26	18942												
131 20:41:18	-48.91	27886	131 20:57:12	-23.05	18943												
131 22:23:19	-74.42	27887	131 22:38:25	-48.35	18944												

SATELLITE C3**Ascending Node Predictions**

Predicting for 186 days

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

132 01:40:35	-165.75	29511
132 03:25:29	167.89	29512
132 05:10:24	141.54	29513
132 06:55:19	115.18	29514
132 08:40:14	88.83	29515
132 10:25:09	62.48	29516
132 12:10:04	36.12	29517
132 13:54:58	9.77	29518
132 15:39:53	-16.59	29519
132 17:24:48	-42.94	29520
132 19:09:43	-69.29	29521
132 20:54:38	-95.65	29522
132 22:39:33	-122.00	29523

SATELLITE C4**Ascending Node Predictions**

Predicting for 184 days

TIME (GMT)	E LONG	ORBIT
day hr mn sc	deg dg	

132 01:01:50	66.66	4276
132 02:46:44	40.31	4277
132 04:31:38	13.96	4278
132 06:16:32	-12.39	4279
132 08:01:25	-38.74	4280
132 09:46:19	-65.09	4281
132 11:31:13	-91.44	4282
132 13:16:07	-117.79	4283
132 15:01:01	-144.13	4284
132 16:45:54	-170.49	4285
132 18:30:48	163.17	4286
132 20:15:42	136.82	4287
132 22:00:36	110.47	4288
132 23:45:29	84.12	4289

133 00:24:27	-148.36	29524
133 02:09:22	-174.71	29525
133 03:54:17	158.94	29526
133 05:39:12	132.58	29527
133 07:24:07	106.23	29528
133 09:09:01	79.87	29529
133 10:53:56	53.52	29530
133 12:38:51	27.17	29531
133 14:23:46	.81	29532
133 16:08:41	-25.54	29533
133 17:53:36	-51.89	29534
133 19:38:30	-78.25	29535
133 21:23:25	-104.60	29536
133 23:08:20	-130.96	29537

133 01:30:23	57.77	4290
133 03:15:17	31.42	4291
133 05:00:11	5.07	4292
133 06:45:04	-21.28	4293
133 08:29:58	-47.63	4294
133 10:14:52	-73.98	4295
133 11:59:46	-100.33	4296
133 13:44:40	-126.68	4297
133 15:29:33	-153.03	4298
133 17:14:27	-179.38	4299
133 18:59:21	154.27	4300
133 20:44:15	127.92	4301
133 22:29:08	101.57	4302

134 00:53:15	-157.31	29538
134 02:38:10	176.34	29539
134 04:23:04	149.98	29540
134 06:07:59	123.63	29541
134 07:52:54	97.27	29542
134 09:37:49	70.92	29543
134 11:22:44	44.57	29544
134 13:07:39	18.21	29545
134 14:52:33	-8.14	29546
134 16:37:28	-34.50	29547
134 18:22:23	-60.85	29548
134 20:07:18	-87.20	29549
134 21:52:13	-113.56	29550
134 23:37:08	-139.91	29551

134 00:14:02	75.22	4303
134 01:58:56	48.87	4304
134 03:43:50	22.52	4305
134 05:28:44	-3.82	4306
134 07:13:37	-30.18	4307
134 08:58:31	-56.52	4308
134 10:43:25	-82.87	4309
134 12:28:19	-109.22	4310
134 14:13:12	-135.57	4311
134 15:58:06	-161.92	4312
134 17:43:00	171.73	4313
134 19:27:54	145.38	4314
134 21:12:48	119.03	4315
134 22:57:41	92.68	4316

135 01:22:02	-166.27	29552
135 03:06:57	167.38	29553
135 04:51:52	141.03	29554
135 06:36:47	114.67	29555
135 08:21:42	88.32	29556
135 10:06:36	61.96	29557
135 11:51:31	35.61	29558
135 13:36:26	9.26	29559
135 15:21:21	-17.10	29560
135 17:06:16	-43.45	29561
135 18:51:11	-69.80	29562
135 20:36:05	-96.16	29563
135 22:21:00	-122.51	29564

135 00:42:35	66.33	4317
135 02:27:29	39.98	4318
135 04:12:23	13.63	4319
135 05:57:16	-12.72	4320
135 07:42:10	-39.07	4321
135 09:27:04	-65.42	4322
135 11:11:58	-91.77	4323
135 12:56:51	-118.12	4324
135 14:41:45	-144.47	4325
135 16:26:39	-170.82	4326
135 18:11:33	162.84	4327
135 19:56:27	136.49	4328
135 21:41:20	110.13	4329
135 23:26:14	83.79	4330